

5-11 December 1985

It's the best selling weekly

Vol 4 No 49

THIS WEEK

Wigmore's C64 Mouse

Midi Music Progress

COMPUTER USERS 1986 DIARY

Amstrad sets its sights on IBM

AMSTRAD is believed to be aiming to tackle IBM head-on with the launch of an IBM PC compatible machine in the Spring next year

Much of the groundwork for Amstrad's entry into the business computer market has already been done.

The PCW 8256 word-processor model launched by Amstrad in September has established links with office equipment distributors who will be expected to take the follow-up machine

Many of the CP/M packages being specifically designed for the 6128 and 8256 will also run on the PC Mallard Basic, Locomotive Software's language package bundled with the 8256 has already been developed as a 16-bit version for the IBM compatible

The model is unlikely, though, to run the IBM version of Digital's CP/M, CP/M 86 Frank Iveson, operations manager of Digital Research said, "All our discussions with Amstrad are about 8-bit machines, there is no 16-bit at all"

Locomotive has also acquired the services of Howard Fisher who was formerly in charge of Acorn's ABC product development The ABC range, now largely dropped by Acorn, included as its flag-ship model the ABC 310, a fast IBM compatible based on the advanced 80286

continued on page 4 ▶

MICRO MAGIC

Find out if you have won an Amstrad 6128 this week or at least some special *Popular Computing Weekly* cassette labels

Enter your personal Micro Magic number into our special computer program which is printed on page 33.

Lord of the Rings

PART 1 of Lord of the Rings, the long-awaited follow up to *The Hobbit*, is to be released this week by Melbourne House, for the Spectrum Plus

The twin-cassette and book package costs £15 95 Full story on page 5



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Vol 4 No 49

EDITORIAL

Following the debate concerning the introduction of the Lenslok anti piracy device on a number of prestige software products this autumn it was very encouraging to hear from Firebird that some of the expected savings are to be passed on to the software buyers themselves

The reason Firebird's move to pass on some of the saving will be particularly welcomed is that – almost without anyone noticing – software prices have crept up over the last 18 months by almost a 100 per cent.

Remember Imagine when it first started? It was noted for its one-price policy: all its titles were £5 50 Then it became reasonable to charge higher prices depending on machine, the higher the cost of the hardware – and by association the better off the owner – the more it was acceptable to charge So C64 software cost more than Spectrum titles and BBC software beat the lot

Then, first Ultimate and then Ocean/US Gold settled on the magical figure of £9 95 Since then most other software houses have followed suit and a shade under £10 is now the norm.

Yet, £10 is an awful lot to spend on a single program. How many young people can afford to fork out that kind of money once a week? Very few And the deterrent of price alone could itself be a powerful reason to copy

Software houses may be pricing themselves out of their livelihood.

Entertainment software prices should be pegged at roughly the same as a music cassette or record – around £6-7 because that is their perceived worth.

Editor David Kelly **News editor** Christina Erskine **Features editor** Graham Taylor **Software editor** John Cook **Production editor** Lynne Constable **Editorial secretary** Lucinda Lee **Advertisement manager** Jeff Baggett **Advertisement Executive** Diane Wolyoak **Classified executive** David Osen **Administration** Geraldine Smyth **Managing editor** Duncan Scot **Publishing director** Jenny Ireland. **Published by** Sunshine Publications Ltd 12-13 Little Newport Street, London WC2H 7PP Tel 01-437 4343 Telex 296275 **Typeset by** Publishers Reprographics Services Ltd, 4 Roger Street London WC1 **Printed by** Greenaway Harrison, Sutton Road, Southend-on-sea, Essex **Distributed by** S M Distribution, London SW9 Tel 01-274 8611, Telex 261643

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How to submit articles Articles which are submitted for publication should not be more than 2000 words long The articles, and any accompanying programs should be original It is breaking the law of copyright to copy programs out of other magazines and submit them here — so please do not be tempted **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Computer Trade Association Magazine of the Year

Sinclair turns in £18.3m loss

SINCLAIR Research's financial results annouced late last week show clearly the reason the company hit financial trouble during the summer

The figures show the company made an £18 3m pre-tax loss for the year ending March 31 1985 This compares with a £14 2m profit for the previous year

The gloomy picture results from Sinclair having to drastically reduce the estimated worth of high stocks of Spectrum and QL machines held by the company in total Sinclair wrote down the estimated value of micros held by £22 7m.

Since March the company has taken steps to reduce its high stock levels, first through its £10m Spectrum Plus deal with Dixons, than with a dramatic price cut on the QL from £399 99 down to £199 99

Despite the loss, however, Sinclair's turn-over continues to rise, as it has done since the company's inception. Turnover to March 31 rose to £102 8m from the previous year's £77 7m Exports were also up, they now comprise 40% of Sinclair's sales as compared to 33%

Sir Clive Sinclair said that profits were sharply hit by the lack of business in the final quarter (the first quarter of 1985) and the need to revalue stock downwards He also said that the substantial provisions made by the company at the nine-month stage (at the end of 1984) proved subsequently to be inadequate in the light of the virtual cessation of deliveries to retailers in the first quarter of 1985.

Program hitch for C128

IT WOULD seem that the new Commodore C128 micro is not completely software compatible with all Commodore 64 programs

Although Commodore has advertised the C128 as being completely software compatible with the C64 in C64 Mode, it appears that some minor changes have been made to the display chip which are causing problems with a few titles

"There are two additional registers at the end of the video chip," explained Commodore UK programmer Mark Palmer "These were normally invisible in C64 mode, but some programs may have written over them, although they should not have The only other problem we've come across is with some fast loaders."

One game that has been causing problems is *Frankie Goes to Hollywood*, published by Ocean and written by Denton Designs A spokesman for Denton Designs said "This sounds like a problem with the loader rather than the game – since as far as I know there is nothing in there that would stop the game from running normally."

Mark Palmer advised anyone having trouble running C64 games on their C128 to contact the software company first in case an up-dated version has been prepared

Amstrad PC

◄ continued from page 1

processor. Amstrad is expected to launch its IBM compatible micro next march – around the time that Commodore delivers its rival Amiga micro.

An Amstrad spokeswoman commented, "We have no plans for the near future to bring out any other pieces of computer equipment."

Infocom's adventures out on CP/M

INFOCOM'S highly acclaimed adventures, including *The Hitchhiker's Guide to the Galaxy*, will soon be available on a much wider range of machines following UK publisher Softsel's decision to convert them to run under the CP/M operating system.

Apart from *Hitchhiker's Guide*, *Zork 1*, *Seastalker*, *Planetfall* and *Deadline* are also to be converted Prices have also bene reduced *Hitchhiker's Guide* will now cost £24 95 and the others £19 95

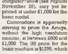
"I am certain of a huge response from users of machine like the Amstrad, BBC and Einstein," said Peter Scatchard, Softsel's marketing manager

The conversions should be available within the next two weeks

Sub-£1,000 Amiga?

COMMODORE'S Amiga micro due for launch in this country at January's *Which computer?* Show (see *Popular* November 28), may yet be priced at under £1,000 for the basic model

Commodore is apparently striving to price the Amiga, without the high resolution monitor, at between £800 and £1,000 The US price for the basic machine is $1295, which



converts directly to £877, at current exchange rates The version with the monitor costs around $1900 (£1287)

Commodore itself would only say, however, that a price has yet to be fixed.

Fraud squad goes in at Medic

MEDIC Datasystems, the company which widely advertised QL peripherals such as a disc drive and a memory expansion pack, has been brought to the attention of Hampshire's Fraud Squad, apparently for non-delivery of mail-order goods

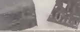
Hampshire police were first contacted by two women apparently running the company after its head, Christer Skoglund, had gone to Ireland, two months ago The women said they were unable to get in touch with Skoglund, and had found themselves locked out of the company premises after non-payment of rent

The Fraud Squad is now looking through all Medic's paperwork, which includes orders, cheques and letters complaining of non delivery of goods "It is not an investigation as such," said a member of the Fraud Squad. "We won't know if the company has acted fraudulently until we have been through all the papers."

Medic's bank account has been frozen by one creditor and a winding-up order placed on the company by another

"I would not advise anyone to order goods from the Medic at all," the Fraud Squad spokeswoman added

Anyone who has ordered and not received goods from Medic should contact Sgt Young, Hampshire Constabulary, Orchard Lane, Alton, Hants (0420 82244)



Rings released

TOLKIEN'S *Lord of the Rings'* trilogy is being published in three parts by Melbourne House. Part I released this week is based on the first book, *The Fellowship of the Ring*. The next two books, *The Two Towers* and *The Return of the King*, and their associated games are to be released next year.

At £15.95, the first game includes three adventures and a copy of the book, *The Fellowship of the Ring*. Two of the games are full scale text and graphic adventures, while the third is a 'beginner's' adventure, designed to help adventure novices and Tolkien non-afficionados become acquainted with the nature of the full games.

The parser used in the game allows much interaction between characters, and enables the player to take the part of one of four people: Frodo, Sam, Pippin or Merry. It has a vocabulary of 800 words.

Commodore, Amstrad and BBC version are all expected before Christmas at the same price, although there will be no graphics with the BBC version.

Apricot profits drop

APRICOT Computers, formerly known as ACT, has run into problems. The company's profits dropped from £3.8m in the first half of 1984 to £1.29m in the first half of this year. Added to this is a £5.1m write-down of stock, due to disappointing sales of its portable machine, leaving the company with a £4.6m loss. Apricot has also announced 120 redundancies, about 100 from UK staff and a further 20 in West Germany.

Fleet Street goes home

MIRRORSOFT has launched *Fleet Street Editor* a page layout/newsletter creation program for the BBC.

The company intends to publish *Fleet Street Editor* eventually in a number of forms. Level One includes versions for BBC, Amstrad CPCs and Commodore 128, which Mirrorsoft calls the everyday level. These versions enable users to create text in a number of fonts, select graphics to illustrate it, and arrange it on an A4 sheet, then print it out.

Level Two will be based on MSDOS, and thus run on Apricots and IBM compatible machines. This will accept more sophisticated input and output and will directly interface with a phototypesetting system.

Level Three is designed for 68000-based machines, specifically the Amiga and Atari 520T, and will be a full photocomposition workstation.

The first *Fleet Street Editor*, the BBC version, will be released in January at a price of £39.95.

Letters

Out of reach

Can anybody out there help me?

I have an Amstrad 6128 and a Juki 6000 printer. Everything works fine, *Tip-Ex* is a thing of the past. The secret of the microelectronic revolution is not that the things are clever but that they're so cheap.

There is however a snag: the Amstrad will only send a seven-bit character code to the printer and there is a proper pound sign and several other useful things of reach on the daisy wheel.

Does anybody make a gizmo that sets the eighth bit to the printer when sent a code (say ESC + >) and then resets it for the next character?

I know other people who have trouble getting characters with codes above 127 to their printers and some of them have gear twice as smart as mine.

Does the fix exist?

Peter Ceresole
14 Medcroft Gardens
London SW14

A cult micro

Your assertion, that the Spectrum is not a good computer, is without foundation.

Most of the micros in your survey were sawn-off business machines, sporting tiny Basics. The exceptions were the QL, Enterprise and the Spectrum.

The major ingredient of benchmarks are *For-Next* loops and, as even the Americans (who invented Basic) now agree, the programmer should be able to:
1) jump out of a for-next loop
2) alter the value of the loop counter
3) depend on the value of the loop counter after the loop has finished

The Spectrum allows all three. The BBC, for instance, allows none.

As a measure of a Basic's power, you should be able to use all the micro's memory with a single direct command or a simple program, eg, 1 *Gosub* 1. Garbage collection causes problems on micros like the Amstrads and the BBC. The Spectrum simply never allows it to build up in the first place.

The Spectrum has the most efficient memory manager in the computer world.

Anyone who's learnt assembler (any chip) can instantly understand the flow of a Sinclair Basic program, and conversely, by the time the Spectrum owner has learnt Basic, s/he is half-way to learning machine-code.

Perhaps the Spectrum's greatest asset is that it is future-proof. It uses a single bank of Z80 addressable memory (bank switching has no place in future chip use). Furthermore it has a fully documented Rom which teaches by example good assembler technique.

I program on a variety of micros but develop new ideas on the Spectrum.

It is a beginner's, all-purpose machine, which will remain a cult micro for all the right reasons.

Geoffrey Wearmouth
Stoke Newington
London N17

How did Arthur Dent and Ford Prefect get into our business software Pemberton?

C64 changes

It was interesting to see an article by Tim Decker (September 13) concerning changes to the C64.

I have been doing something on similar lines but have extended it to the blowing of an Eprom containing the changes and the manufacture of an adaptor to convert the 28-pin Eprom to the 24 pins of the Rom it replaces.

If anyone wants to know more perhaps they could drop me an SAE.

Robin Harvey
30 Wimborne Close
Coombe Glen
Glos

MIRRORSOFT

CHILDREN'S CHRISTMAS CRACKERS

THE GIDDY GAME SHOW

The Giddy Game Show is new, it's fun, it's for under 5's and their parents – and it's being broadcast nationwide by Yorkshire Television

Each of the 26 programmes in the series features a letter of the alphabet – and we've taken the same approach with the software Giddy the tiny alien with a magic wand and his friends Gorilla and Gus get up to all sorts of adventures in their quest for knowledge about our world!

There are four games – The Letter Game The Jigsaw Puzzle The Hungry Gorilla Game and Princess Galaxzena's Maze – all combining a lot of fun with learning about letters

Full colour storybook and keyguide included

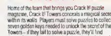
To be published in November with full-colour storybook for BBC B/Electron and Spectrum, £9 95 tape, £12 95 disk (BBC only)

THE GIDDY GAME SHOW

If you like solving puzzles, you'll love

CRACK IT! TOWERS

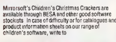
CRACK IT! TOWERS



Home of the team that brings you Crack It! puzzle magazine, Crack It! Towers conceals a magical secret within its walls Players must solve puzzles to collect the seven golden keys needed to unlock the secret of the Towers – if they fail to solve a puzzle, they'll find themselves in the moat, and the less-than-alert could have their keys stolen by any of the castle's more unfriendly residents But there's also the chance to gain bonus keys in the Maze of Skulls

There are arithmetic problems, spelling games anagrams, and mazes to negotiate – with different levels to challenge kids and adults alike!

**To be published in November for BBC B/Electron and Spectrum
£9 95 tape, £12 95 disk (BBC only)**



Mirrorsoft's Children's Christmas Crackers are available through BESA and other good software stockists In case of difficulty or for catalogues and product information sheets on our range of children's software, write to

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All screenshots are from the Commodore 64


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Beyond the blip

***Graham Taylor** looks at the new sound facilities*

The noises your computer makes are becoming important The casual blip to indicate variously, a key pressed, 'you can't do that', or 'the world has now exploded as a result of a cataclysmic atomic war', used to be enough for anyone

Now everybody knows you beef up sales by a sizeable percentage by giving your product synthoflash multi-channel, get on down, fully-fledged music

Real programmers don't care, of course, they occasionally moan on about such irrelevancies as music being custard on the meat of computer use, which is, of course, databases, accounts programs and number crunching as in 'let's just work out Pi to a few thousand places before lunch'

Alan Sugar – well known computer aesthete and purist – is not, however, selling bundles and bundles of 6128s to real programmers, he's selling them to ordinary everyday people like you and I.

Music matters because a decent soundtrack on a game can give it meaning, drama and added excitement in exactly the same way that the soundtrack of a film functions The first good example of this was *Ghostbusters* which, in its original Commodore 64 version, had a music track so good few reviewers spotted that the game wasn't really up to much – they didn't get past the funky opening credits

Professional musicians now use micros via the Midi communications protocol to write arrange and record – they give (in conjunction with all kinds of clever things that have happened in music technology recently) one lone keyboard player the opportunity to manipulate sounds limited only by the imagination and perseverance You don't necessarily even need any music skills

The hardware companies have hardly been oblivious to these developments and it's useful to look at some of the specifications for the newer machines and see how the musical facilities of the machines are changing and growing

Sampling

A simple idea with fundamental effects In the long run Sampling could effectively depose the need for musicians – including orchestras – completely. It works by turning a 'real sound' like a trumpet into digital information which can then be manipulated in virtually any way you like and played back at any pitch using a keyboard.

Quite a few programs already feature sampling of a simple kind – mostly it's speech saying something like 'kkkeal the ernemych' At some point a real person said 'kill the enemy' into a microphone a few thousand times and that information was converted using an analogue to digital device. The reason it doesn't sound too good is partly to do with 'noise' when the original recording was made and partly to do with the rate of sampling The higher the rate the more accurate will be the sample, but more memory will be used up

There are some simple peripherals for home micros which let you try your own sampling and a number of listings have been printed in this and other magazines which convert sound information fed in via a tape port into a digital form – the end result still sounds like a badly tuned-in radio, though.

However, things are changing, mainly thanks to Commodore The Commodore 64 is shortly to get a Sampler with various sampling rates, clever things like harmonising and flanging and is Midi compatible That means you will be able to play the sampled sounds from the micro on any Midi-compatible music keyboard

The Amiga, also from Commodore, due some time early next year, promises to be the first micro with sampling of a quality equal to that of dedicated music machines built-in.

Commodore are describing it as Fairlight compatible (the Fairlight is the Cray of sampling machines) though what that means seems uncertain. Whatever else though, the Amiga has some superb facilities Commodore has already shown some demos of samples of such things as drums and pianos, but the crowning glory was a powerful electric guitar sound Seeing *Smoke on the Water* played on the Qwerty keyboard is a sight I shall never forget

More important still, the Amiga has the memory and hardware (four analogue-to-digital convertors) to enable polyphic sampling – that means chords

Midi

Midi is a standard. An agreement between musical instrument manufacturers over electric standards which means that the keyboard of one machine can be used to play another or a drum machine can be syncronised with another manufacturers synthesiser and so on. The important point for micro owners is that it is possible – indeed quite easy – to implement Midi on a micro.

A Midi equipped micro is, from a musician's point of view, a powerful tool. It means that the memory and programming facilities of the machine can manipulate the sounds of external Midi instruments Thus a typical Midi software page might let you compose music on-screen, then manipulate that music in a variety of ways, somewhat like a wordprocessed document. The different music parts can then be assigned different Midi channels and played on a number of external instruments. It's really similar to the standard music packages you might find on a micro, but it lets you 'play' your music with real instruments

The Atari ST has a Midi port as standard, but no software as yet to support it

Micro Music Power

Even more interesting, the Spanish Spectrum 128 also has a Midi port and there is every reason to think the British version will have one too

A Sinclair machine with Midi is an exciting prospect because it will bring this facility in as a standard on a low-cost micro and in so doing will encourage other manufacturers to follow suit. The Amiga does not have a Midi port as standard, but will have an add-on music keyboard, software and Midi package available shortly after its launch

Synthesis

The average sound chip, found in say the Amstrad and BBC, is three channel Each of those channels consists of an oscillator with a number wave forms and an envelope generator to define the shape of each sound (how quickly it starts and stops) This has proved adequate for the average game, creating explosions, rasps and jangly little tunes whilst you're playing

However, people are starting to want more The Sid chip, found in the Commodore 64, has somewhat better facilities than the norm despite having only three channels For one thing it has a filter which makes things a lot more interesting because it dramatically increases the range of sounds available, it can also syncronise sounds and do other clever things. The Sid chip is arguably the single feature that distinguishes Commodore 64 titles from those of other machines -- they sound better In fact, some recent programming of the Sid chip, notably by Ron Hubbard, has produced very impressive electro-disco music with wailing guitars and electronic drama

The Sid chip is leading the way to considerably more powerful on-board chips So far the only real example is Yamaha's CX5 which has eight-channel synthesis, based on the FM system Yamaha use in the now semi-legendary DX7 The CX5 has recently been reduced in price to £299 complete with mini keyboard

The Amiga uses a special four-channel arrangement which can create sounds of astounding complexity The reason is that the concept of sampling extends to the creation of the waveforms themselves

Thus instead of taking the sound information from an outside source (sampling) and representing it digitally, you can feed in the digital information directly and create the sound forms out of a string of numbers These are then fed through the analogue to digital convertors and output through the stereo channels as sound

Commodore are bringing out an FM sound device as an add-on to the Commodore 64 which will give it eight voices and 16 preset sounds of high quality. Later software will allow you to edit those sounds and sequence them.

The important thing about all these developments is not, primarily, the scope the micro gives and will be giving to musicians The important thing is what it will do for games, which, despite all grumbles to the contrary, still form the main reason that people buy and continue to use micros.

The Amiga, for example, is perfectly capable of running a complete music soundtrack using voices indistinguishable from 'real instruments' Once you've tried a flight simulator with sampled 737 engine noises that respond to the power level, you'll find a three channel buzz pretty unexciting

Competition

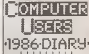
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Not only that but, of course, they contain all the usual things you expect from a diary – special dates, 1985, 1986 and 1987 calendars.

All you have to do to be in with a chance of winning one of the 100 diaries is to complete the coupon below, cut it out and send it before Wednesday 18 December to Diary Competition, Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7PP. The winners will be those who correctly answer the three questions and who, in the opinion of the judges, best complete the phrase. The judges decision will be final.



Please fill in the coupon and send it to Diary Competition, Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7PP

1) In which year was the 16K Spectrum announced? ....

2) In what month did Amstrad announce the CPC664? ....

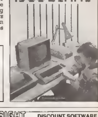
3) How many issues of Popular Computing Weekly have been published (including this one)? The first issue was published on April 23, 1982. ....

Now complete the phrase in not more than 10 words. "A Letts Computer User's Diary would help me to.. ....

....

Name: ....

Address: ....



Moving up to 16-bit

***Christina Erskine** talks to Tony (ex-Firebird) Rainbird*

A lot of people were surprised at British Telecom's first foray into the computer software market – unassuming £2.50 budget games. Firebird's product seemed rather down-market given the high tech, go ahead, image BT was promoting at the time of its privatisation.

Yet going up-market was always planned and a month ago, Rainbird was launched. This completes a trinity of software divisions following as it does, the acquisition of Beyond.

Rainbird is being launched and established by the eponymous Tony Rainbird, who was also a co-founder of Firebird. His brief is to produce sophisticated titles on more machines, leaving budget fare on 8-bit micros to Firebird. The new division currently numbers four staff, Tony, as operations manager, Mike Anderiesz as advertisement manager and Steve Porter and Tony Gibson, project managers.

Tony is particularly interested in developing programs for the 68000 processor based micros such as the Apple Macintosh, Atari ST, Amiga and the QL.

"This means we'll be doing things over a much longer time than Firebird – everything will be with a view to the future," he said.

At first sight Rainbird appears a risky, though exciting venture. After all, all the four machines named above have yet to prove themselves in this country, is it really a profitable project?

"Well, there's less risk than you might think. We want to concentrate on the processor rather than a specific machine and of those four at least one will succeed.

"In fact, I'm expecting us to become profitable very soon because it simply isn't practical to concentrate only on developments for the future micros," he said cheerfully.

"Besides, our range is already wider than that. We have projects in progress for 8-bit micros too – the *Music System* and the *Advanced Music System* for the Commodore, and the *Art Studio* for the Spectrum. These are being converted to the Amstrad CPC micros, and the *Art Studio* also for the Commodore.



"On the adventure side, we will be releasing *The Pawn* which is being written by Magnetic Scrolls on the 68000 micros. Magnetic Scrolls is converting the parser used for the popular 8-bit machines as well.

"But our target for the 16-bit machines is still entertainment – we're not interested in spreadsheets and so on just yet. We will have a combination of adventure, simulation and strategy, and also what I can only really term 'megagames' – I can't think of a better word to describe them.

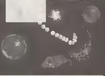
"For example, one project we have underway is *Reach For The Moon*.

It contains an icon driven 'decision maker', eight text and graphic adventures, and a vector graphic flight simulator, all in the one program."

Tony hopes that Rainbird will be able to release about one title each month in 1986.

Prices will inevitably be quite high, but according to Tony, "we'll price according to merit and, of course, the development costs."

In some respects, Firebird, Rainbird and Beyond will all be competing against each other with titles of a similar quality,



although New Information Services, the division of BT which holds all three, will ensure that the trio never, for example, bid against each other for the same licensing rights.

Rainbird will also work very closely with BT's newly set up software arm in the US, Firebird Licensees Inc.

"A good proportion of our product will be suitable for the American division, and a smaller proportion of that from Firebird and Beyond. The *Music System* is to be released over there, as is *Elite*."

Tony reckons a priority for the US is products for the Atari ST.

"They've sold between 50,000 and 60,000 over there, so it's going quite nicely. I reckon there'll be quite a few around in this country by next Christmas as well."

Plans are also afoot to export the other way – into Europe. The *Music System's* manual has been translated into German in readiness.

Rainbird is certainly a far cry from Tony's first micro venture. "I was a warehouse supervisor, writing games and setting up a label called Microgold in my spare time.

"There were five budget titles for the Vic 20, three of these games I'd written myself.

"The duplication, sticking the labels on cassettes, folding the inlay cards and selling directly to the shops was all done by me.

"Then British Telecom bought the product rights, I applied for a job to go with them, and ended up helping to launch Firebird.


This is the only
warning you'll get.
They're coming soon.
FIREBIRD
NEW FROM FIREBIRD. THE HOT RANGE.


THEIR FINEST HOUR
John Wilson
and Nicholas Palmer
"What's that picture supposed to be?"
"Er, eye-catching, that's what it's supposed to be "
"But it doesn't tell you anything about the great new icon-driven Battle of Britain strategy game, THEIR FINEST HOUR, from Century Communications, publishers of THE FOURTH PROTOCOL I mean, what's it got to do with using your skill and judgement to stem the almost inexorable advance of Goering's Luftwaffe? Does it tell you anything about the deployment of Spitfire squadrons and ack-ack batteries, the allocation of fresh pilots, or keeping in touch with the weather forecast? How about the daily reports you have to make to Winston Churchill, and the pulse rate feature where you control the speed of the game?
"Well er "
"Right, we'd better hurry up and design a new ad before the game hits the streets on 9 December, and people start writing to and phoning Century Communications at 62-65 Chandos Place, London WC2N 4NW, Tel 01-240 3411 and asking for copies "
THEIR FINEST HOUR
48K Spectrum
Their Finest Hour — a great strategy game simulating
The Battle of Britain, by Nicholas Palmer and John Wilson
Published by Century Communications for the 48K Spectrum at £9.95.

Reviews

Lukewarm

Program *Swords and Sorcery* **Micro** Spectrum 48K **Price** £9 95 **Supplier** PPS, 452 Stoney Stanton Rd, Coventry CV6 5DG

It's been a long time coming and not surprisingly we all hoped for something special.

Opinions differ wildly on the final results. One person I know would put it at the top of his Program of the Year list without any hesitation

I belong to the other camp. While I admire the hard work in programming *Swords and Sorcery* – and the Midas operating system which drives it – my overall reaction is lukewarm

Perhaps I expected too much but after 16 months of promises of micro role playing, I'm sad to find the reality less like *Dungeons and Dragons* than I'd hoped. One immediate problem is the design of the enclosed dungeon, which is rich on rooms but low on atmosphere. The succession of chambers (each with its own monster, most of which have to be fought as they don't respond to the excellent Talk option. 'Hello, Mr Snake' doesn't get you very far) is hardly inspiring and I'd question the importance of the 3D graphic when all they produce is bland line drawings that suggest nothing more than an NCP car park.

On the other hand the series of menus and submenues that guide all but your movements take no time to learn and then work very smoothly. Even so, other aspects of the display can be confusing, and at times I was unsure just what was going on. Another aspect of role playing is maintaining the logic of the game and so I couldn't see why I was allowed a map of a quarter of the level with the positions of wandering monsters marked.

So, though the game gives you the ability to train your own character in various skills, I found myself unable to empathise with him and get into the spirit of the adventure

Perhaps the Midas system will improve as better environments become available, but at the moment it lacks the human level of playing another character

It is all too schematic

John Minson

Numbers

Program *Supercalc 2* **Micro** Amstrad CPC 6128/PCW 8256 (CP/M+) **Price** £49 00 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex CM14 4EF

I must admit that I scoffed at the idea of providing CP/M on home computers. One of my principal doubts was that a vast proportion of the software available carried enormous price tags, explained away by the need for 'dealer support', etc, that surpassed the cost of the computers themselves. Now I have to eat my words, as Amstrad, and certain other dealers, have been remarkably successful in negotiating price cuts of important releases

Supercalc 2 is probably one of the top five best known names in the business software world, used by companies worldwide. Now for a lowly £49 you too can run the very same thing to keep track of your home budgeting. I'm still not entirely convinced that this means that owners of the 6128 should therefore ignore the best of the cheaper software such as *Mastercalc* but it is something to think about. Perhaps more importantly it makes the 8256 even more viable as a real low-cost business system.

Unusually for a heavyweight CP/M release, it runs quite well on only one drive. Features offered include complex and very comprehensive formula options, the ability to merge several small sheets into one large one, a utility to convert files from another program into *Supercalc* readably and vice versa, calendar functions, user-defined screen formats, windowing, text look-up tables (for details not shown on screen all the time) and the ability to 'hide' selected cells

Take my word that it can't be faulted

Tony Kendle

A yardstick

Program *Yie Ar Kung Fu* **Micro** BBC/Electron **Price** £8 95 **Supplier** Imagine, 5 Central Street, Manchester

Not too long ago Bruce Lee, complete with flying feet and fists, was king of the silver screen. But like many crazes, the popularity of kung fu slowly faded. The micro revolution has stimulated new interest in this most noble way of beating your opponent senseless. One fine example of a kung fu program is *Yie Ar* from Imagine

Your function in this game is to control the actions of the kung fu master Oolong. By using keyboard or joystick you can execute over a dozen combinations of jumps, kicks and dodges

Oolong's first opponent is a 20 stone tank named Bucha. A chest high head butt is one of this guy's favourite moves. The second opponent is rather more difficult to dispose of. In keeping with his name, Star, he launches a constant barrage of spiked missiles. Getting close to him is difficult, putting him down is even worse

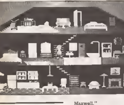
Nuncha is the third adversary, armed with two lengths of wood joined together by a chain. Once he gets that thing whirling your best bet is to keep your head down and go for the shins

On level four your opponent is a little man with a big stick. This honourable gentleman is intent upon giving you indigestion. I reached level five and was stood waiting for my next opponent to appear when I was suddenly accosted by a swarm of flying teapots. These "feedles" were my downfall every time, no matter how I tried I just couldn't kick sufficient of them to reach the next level.

The graphics are excellent, each character's movements being tailored to his own particular discipline. This combined with the wide variety of opponents will make *Yie Ar* the yardstick to which other manufacturers' offerings will be compared.

Hannah Frances

Reviews



Little person

Program *Little Computer Person* **Micro** Commodore 64 **Price** £14.95 **Supplier** Activision, 15 Horley House, London NW1

Dear Friend,
I am going to be very busy in my new home, so please don't think I am being rude by ignoring you, it's just that there's so many things to play and do, they will take up all my time. Please remember to keep me fed and top up my water and I'll want for nothing else.
Love,
Maxwell."

Billed as Activision's biggie for Christmas, this was how my little computer person introduced himself and his dog to me, and after moving in and having a good look around, he got down to the real business of his life – that of playing games, talking to his friends on the telephone, dancing, playing the piano and exercising.

David (*Ghostbusters*) Crane who masterminded this concept says that each little person sold will have a different name and possess his/her own particular characteristics – shy, extrovert, musical, etc.

I must admit that he is starting to bore the pants off me.

This is not a game, but an exercise in observation and however much Activision promote it as being a real live person inside your computer, it has the obvious limitation of memory and soon becomes repetitious in the extreme.

What you see on screen is a 2½ storey house with all the mod-cons, ie, TV, hi-fi, bedroom, kitchen, lounge etc. and after the initial 'moving in' sequence, which only happens the first time you load up, your little friend flutters around the house at random, ie, playing the piano which utilizes the 64's excellent sound system (and up to now I have heard five different tunes), dancing, listening to records, playing cards and typing letters to you which is his only means of communication to humans.

Using the keyboard, you can type in commands and ask him to do things which may or may not happen.

The attention to detail in the house is excellent, there is even a clock on the wall which keeps perfect time from the moment you type it in at the beginning of each session.

He will go to the toilet at regular intervals, conveniently shutting the door first and flushing of course, and makes himself meals, washes up and even cleans his teeth afterwards – a nice touch.

Playing cards with him is a bit of a let down, you get two choices of game, poker or card war, and a game of anagrams is thrown in as well, but this is not new and the card information in fact replaces the top half of the house which is quite disappointing.

My five year old daughter instantly fell in love with Max and happily played with him for a couple of hours until she lost interest with watching him go through the same sequences again and again.

Concept – totally new, presentation – brilliant graphics and animation – superb sound – excellent; but lasting interest? – no way. What Activision needs to do, if it's possible, is use this as a base module and introduce additional programs to it, giving your man a friend to live with or change the scenery maybe.

As it is, I'm afraid poor Max will be left to live in my daughter's bottom drawer.

Andy Moss

Boiling point

Program *Chemical Formulae* **Micro** Spectrum **Price** £9.95 **Supplier** *Eclipse Software*, 79 Ardrossan Gardens, Worcester Park, Surrey KT4 7AX

I don't know about you but drawing up equations was the bane of O-level chemistry for me. All that time spent looking things up in the Periodic Table, then trying to make things balance. And I usually got it wrong.

Now Eclipse has produced a program that contains a database of elements and ions, which will produce information on formulae, valancies, structures, atomic numbers, and melting and boiling points, more importantly it will calculate formulae, so if you want to know the low down on Potassium Cyanide, just type it in.

It's mainly menu driven and despite being written in Basic works quickly enough. You have to be accurate within certain parameters when naming the elements and ions, but these are quite clearly spelled out in the instruction booklet, which also provides a brief introduction to the topic.

While hardly glossy in presentation, it is serviceable and along with the rather high price this can be excused by the program's specialist nature.

The Basic is unprotected but it's easy to rescue if inadvertently crashed.

There's little more to say. If you need such a program and don't balk at the price this should suit, despite a general lack of chrome. It's also good to see the Spectrum used for something other than alien bashing.

John Minson

Go ape

Program *The Evolution* **Micro** Spectrum **Price** £6.95 **Supplier** Ernieware, Postbus 2353 6201 DB Maastricht The Netherlands

I don't know about that much heralded/bemoaned American invasion but nowadays there's a fair amount of continental software around, what with French pinball machines and Spanish boxers. Now it's Holland's chance to get in on the act and Ernieware tells us that *The Evolution* will be available over here before Christmas.

Despite its missing link cover and instructions full of talk of 'acts', this turns out to be none other than that old – and I do mean old – friend, the computerised cube. A six by four grid of numbers is 'rotated' until the original order is totally scrambled. You have to shift the rows and columns back again. Complete this within a certain number of moves and time limit and you move on to the next stage or 'act'. Difficulty levels are defined by limitations on which way the columns can move and at their hardest these make a complex task totally frustrating.

The game itself is fine if you like that sort of thing and while those of a coolly logical mind will sail through it, others will end up tearing their hair. But no way is it going to scare the producers of the big Christmas games and at the proposed price it's far too expensive for this sort of game. One can only presume that the Dutch software industry isn't as well developed as some of its European counterparts.

John Minson

F.A.B.

Program *Thunderbirds* **Micro** Spectrum **Price** £3 95 **Supplier** Firebird Software, Wellington House, Upper St Martin's Lane, London WC1.

Cue an excellent rendition of the Thunderbirds March.

'Scott Virgil. An emergency A team of archaeulogists have crept into a crypt and gotten themselves trapped."

' Serves 'em right "

"You'll need Thunderbirds One and Two "

"Aww, no – I was gonna take TB One drag racing today "

"There's money in it. The catacombs are alive with treasure "

"And monsters too Betcha "

"Okay there may be the odd monster But you can equip Thunderbird Two from the whole range of tools before you go at cost plus 25% "

' How about a pair of scissors to cut the monsters' strings?"

"Now these caverns from a giant maze "

"Bor-ring!"

"Not so. Some passages are only of a size to take one craft or another, which means you'll need to co-operate '

"I'm not co-operating with him, after last time "

"Well you'll have to to clear passages by shifting blocks, most of which only one craft can do Then there are sections with specific problems it really takes thought "

"That rules out ole' woodenhead here "

"It's really more of an abstract problem."

If you like abstract strategies then you'll probably love it

John Minson

Patterns

Program *Willow Pattern* **Micro** Amstrad **Price** £3 95 **Supplier** Firebird Software Wellington House, Upper St Martin's Lane, London WC2

Yes Grasshopper – san, it is time for you once again to defeat the forces of wickedness in the guise of Ta Jin, a wicked merchant who plans to marry Princess Koong Shee. You enter the Mandarins' Palace, defeat his sword throwing Samurai and rescue her

So begins the *Willow Pattern* – a pretty maze game from Firebird's budget range. Although a bit lacking on actual game play, the program makes good use of the Amstrad's colour and contains some pleasant water music to accompany the action (all water music grates after a while and thus is no exception).

Still, what about the game – it's the usual maze variety with a number of nicely animated guards who throw swords at you if you venture too near, but pass them, wait till they throw the knife, dodge it, pick it up and throw it back at them.

Once the princess is rescued you have to run back through the maze and on to a boat whilst being pursued by the enraged merchant

Not as good as some of the other silver range, but, nevetheless a pretty good Japanese take away

Andy Moss

Rrum rrum

Program *Revs* **Micro** Commodore 64 **Price** £14 95 (tape) £17 95 (disc) **Supplier** Firebird Wellington House, Upper St Martin's Lane, London WC2H 9DL

Whenever I hear people moan about the standard of BBC B software, I point them in the direction of that now classic from Acornsoft, *Revs*

They invariably come back delighted or disappointed depending on what machine they own

Now *Revs* has been converted to the Commodore 64, marketed by those bastions of private enterprise, Firebird

The 64 version is completely faithful to the original in layout and design, and at times you'd be hard preared to guess which machine it was running on. Admittedly, there are slight differences the corners seem a touch more angular compared to the original, and the striped kerbs at the side of the track don't zoom by quite so fast, which for me removed a little bit of the drama and atmosphere But nit picking apart, the gamesplay is virtually identical and you get two tracks, Silverstone plus Brands Hatch.

A nice touch allows the use of the Commodore games paddle as a 'steering wheel' if desired , good thinking by somebody

The most challenging and addictive game to hit the Commodore for quite some time. You'll love it

John Cook

Spelling test

Program *Tas-spell* **Micro** Any Amstrad **Price** £18 50 **Supplier** Tasman Software, Springfield House Hyde Terrace, Leeds LS2 9LN

As a naked word processor, *Tasword/Amstrad* has recently received some extremely stiff competition with the release of Arnor's *Protext* However, the disc versions of *Tasword* are still the best value all-round package for the Amstrad range with mail merge facilities, the *Tasprint* text-redefiner program, and now *Tas-spell*

Tas-spell is self evidently a spelling checker and it is only accessible via a menu option of the disc releases of *Tasword* itself, It is not a stand alone' package The program contains a disc with a dictionery of over two thousand words all with the English spelling and 45K free for you to add ones of your own

It is extremely simple to use, reading through the text currently held in memory comparing it with the dictionary data. Unrecognised words are highlighted, in context, and you are given options to *Ignore* the word, or *Change* the word that you habitually mis-spell.

An irritating feature is that it constantly throws up names, initials, etc You would be well advised to add your name and address to the dictionary Also it makes contextual mistakes such as its over their' but that is a flaw with all spell checkers and no reflection on *Tasword*

On the whole, though, it is an essential utility for anyone who has to produce important and correctly spelt documents

Tony Kendle

MS-2000 Mouse

Hardware *MS-2000 Mouse* **Micro** CBM 64 **Price** £69.90 **Supplier** Wigmore House, 32 Savile Row, London W1X 1AG.

As mouse/icon/window systems become more popular, no doubt prompted by the success of the Apple Macintosh's operating system, more and more micro owners will discover the joys of using these user-friendly devices. The MS-2000, based on a product for the BBC-B, is by far the best such package for the CBM 64 so far.

The MS-2000 is comfortably small, wedge shaped, and has two oblong click switches on its nose. It connects to the 64's joystick port by a standard 9-pin D-plug. Beneath the mouse is the non-slip rubber ball, and inside, the opto-electric circuitry which gives a movement resolution of 100 points to the inch.

Like all mouse systems, the MS-2000 works by being rolled over a flat table surface, and moves a control symbol over a selection of command icons on the screen.

In the case of the MS-2000, the software supplied with the package is called

Line, Circle, Square and Fill routines

Cheese. It's a hi-res design program which enables you to utilise the powerful graphics abilities of the 64 without recourse to the awful CBM Basic.

On loading the software from cassette, you are presented with a blank screen with a selection of icons at the bottom. Rolling the mouse around moves a pencil-shaped cursor over the design area. This cursor changes to an arrow shape when it passes over the command icons. A numerical readout on the bottom left of the screen gives you the cursor's precise location, making exact positioning easy.

To select a function, you merely place the cursor over the desired icon, click the right-hand mouse button, and move the cursor to the drawing screen. I must say that the software is brilliantly programmed: all the graphics facilities are fast, smooth and precise. There are three lots of icons to select from, the two hidden pages are brought up by clicking on the mouse icon.

Graphics facilities include freehand draw, which is very fast and responsive, dotted line draw; straight line draw, which allows you to set a point, extend a line from it and click the button again to draw the line, a very fast circle/ellipse facility, open or filled, equally good square/rectangle drawing, paint, a very fast and efficient fill routine, three selectable "pencil" thicknesses an excellent "airbrush", which allows you to "spray" large areas, either in solid colour or in any one of a selection of 32 patterns.

You have a choice of all 16 colours for the cursor or paint, (unlike some packages, such as the Datex Mouse, which limit you to two colours on the screen at any time). Your current drawing colour is indicated by the border colour.

Should you make a mistake at any time – for instance, allowing a fill routine to leak all over the screen by leaving a box open – you can delete the last action by clicking on the "Cat" icon.

Having drawn your basic design or pattern, there are various high-level options to modify it. You can define a box and copy the contents all over the screen, set up a line of symmetry so that patterns reflect in the horizontal, vertical, or diagonal axis, or any combination, you can change the background colour, scroll the drawing area to get at extra space, zoom in on a small area to make corrections to individual pixels,

Free-hand Draw, Pencil and Airbrush

print your design out in black-and-white on an MPS printer; and save it to cassette.

If it isn't already obvious from the description of the facilities, I must say that I found the MS-2000 wonderful to use, the hardware is excellent, the software technically stunning and well-thought out, and the graphic effects you can achieve, even if you have no real drawing skill, are extremely impressive.

Three minor quibbles, two of which should be dealt with by forthcoming software releases from Wigmore House. Firstly, given the notorious slowness of Commodore cassettes, a disc option would have been nice, apparently both disc and Rom versions of the software are on the way.

Secondly, the lack of any text input option makes the *Cheese* software more suitable for pure graphic design, rather than for applications such as drawing bar charts or circuit diagrams. Forthcoming software will allow you to use a number of text fonts in your designs. There are also hints of other, more general, Windows/Icons/Mouse software to come.

Thirdly, unlike some packages such as Koala Pad, it's not possible to remove the icon menu from the screen to leave the bare graphics. However, this is a minor point since the menu takes up very little space.

The MS-2000 package, which comes with a helpful, clear manual, is certainly one of my favourite 64-compatible products ever.

As a bonus, powering up the micro with the mouse's left hand button held down allows you to use the MS-2000 as a "joystick"!

If you can possibly scrape the money together, do so – letting your creativity flow through the mouse is much more satisfying than zapping any number of aliens.

Chris Jenkins



Data Protection

by Jonathon Darks

The Data Protection Act is in the process of being implemented and in the next few months all large organisations using computers to store personal information about individuals will be required to register with the Data Protection Registrar. Right?

Wrong! Under the strict terms of the act, anyone holding such information should register and anyone contravening the act may find themselves facing a fine of up to £2000 or in some cases an unlimited fine! There are very few exemptions to the act and even a simple mailing list or membership list will not escape if it contains such information as occupation, home telephone number, date of birth, etc.

All right, most impressive, but what relevance does it have to the home computer user? In my own case using a computer to record patient details, the need for confidentiality are obvious, but what about the enthusiast who keeps a membership/mailing list for the local squash club or amateur dramatic society? Not very exciting information perhaps but it will probably contain at least a name and address, home, and perhaps work telephone numbers (and therefore a clue to occupation), and maybe even a date of birth. There are very few exemptions to registration. Quote: Personal data held by an individual and 'concerned only with the management of his personal, family or household affairs or held by him only for recreational purposes'. Such users are unconditionally exempt from registration.

Examples of conditional exemption include, Quote: "data held by unincorporated members clubs relating only to club members" and "data held for distribution of articles or information to the data subjects and consisting only of their names and addresses". Note: these last two are examples of *conditional* exemption. The data subjects concerned must be consulted as to whether they object to the information being kept and must be consulted before any data is disclosed.

How then best to protect the data and of course yourself? Basic security is fairly obvious: don't leave discs or tapes lying around and, proud as you may be of your latest all singing and mail-merging database, be careful who you demonstrate it to! Remember also that computer generated material is just as important so tear up those yards of printout before you chuck them in the wastepaper bin. Finally, to make sure you are not the subject of that fascinating test case that's bound to occur before long, you can obtain full details of the act in (it is claimed) simplified form, for free from: The Data Protection Registrar, Department 1, Springfield House, Water Lane, Wilmslow, Cheshire SK9 5AX.

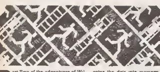
Program

And now my own own small contribution to data protection. The following program, designed for use with a disc drive, will scramble ASCII text or program files, including Tasword files, and will cope with most files containing mixed numeric and string data produced by the Amstrad (not Masterfile files unfortunately, as these are in binary format). It accepts a code word of any length (letters only, these are converted to upper case for processing) and for the more paranoid this need not appear on screen. Then the ASCII value of each letter in turn is added to that of successive characters in the data file, cycling repeatedly through the codeword until the whole file is scrambled. To unscramble the process is reversed. Written in Basic, the scrambling process takes a short while to complete, but any number of files can be selected for sequential processing.

```
30 REM title & initialise
40
50 [illegible]
[illegible]
[illegible]
60 [illegible]
[illegible]
70
80 REM options
90
100 [illegible] "OPTIONS : [illegible]"
110 [illegible]
120 [illegible]
130 [illegible]
140 PRINT#1,"Do you wish the codeword revealed?(y/n)"
150 [illegible]
160 [illegible]
170 [illegible]
180 [illegible]
190 [illegible] "Another? ENTER to proceed or input further file name "
200 [illegible]
210
220 REM enter codeword, check for validity & read into array [illegible]
230
240 CLS[illegible]"INPUT CODEWORD (any length)";
250 IF hide=1 THEN 280
260 [illegible]
270 [illegible]"THIS WILL NOT APPEAR ON SCREEN "[illegible]
[illegible] "So make sure you get it right [illegible]
[illegible]
[illegible]
280 [illegible]
290 code$=UPPER$(code$)
300 [illegible]
[illegible]
310 NEXT n
320 [illegible]
330 [illegible]
340
350 REM open in file for processing into array [illegible]
360
370 FOR file=1 TO [illegible]
380 OPENIN [illegible]
390 WHILE EOF=0
400 [illegible]
410 WEND
420 CLOSEIN
430
440 REM select subroutine for scrambling or encoding
450
460 [illegible]"PROCESSING "[illegible]" -PLEASE WAIT "
470 IF option=1 THEN GOSUB 630 ELSE GOSUB 710
480
490 REM select suitable filetype name & save file
500
510 [illegible]
520 IF option=1 THEN filetype$=[illegible] ELSE filetype$=[illegible]
530 [illegible]
540 OPENOUT name$
550 FOR n=1 TO [illegible]
560 PRINT#9,[illegible]:NEXT n
570 CLOSEOUT
580 NEXT file
590 [illegible]"PROCESSING COMPLETE"[illegible]
600
610 REM subroutine for scrambling
620
630 [illegible]
[illegible] THEN 670
640 [illegible]
650 [illegible]
660 [illegible]
670 NEXT n:NEXT m:RETURN
680
690 REM subroutine for decoding
700
710 [illegible]
[illegible] THEN 770
720 [illegible]
730 [illegible]
740 [illegible]
750 NEXT n:NEXT m:RETURN
```



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NOW WITH NEAR LETTER QUALITY MODE
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True descenders on jpg etc.
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underlines nicely
Italics available in all modes
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This printer is a very high specification at an unbelievable price. It boasts 165 cps in draft mode and 70 cps in near letter quality mode which is switch or software selectable. It is friction and tractor fede as standard has a 2K buffer and is EPSON compatible (it even uses an EPSON ribbon). It can print in standard PICA 80 column mode or a variety of others from enlarged 40 column mode to condensed at 132 column. Italics are available in all modes. Normally this printer would be expected to sell at £300 plus we are offering it at our ultra keen price inclusive of printer lead to suit BBC Amstrad CBM 64 Oric Dragon Einstein or Memotech
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WILBUR

by T A Bartley

Part Two of the adventures of Wilbur, our 100% machine code, multi screen arcade game. This week, use the new loader program to enter the data into memory and save with *Save "Code 41886, 2682*. More to look forward to next week.

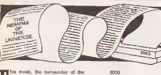
In the meantime, if all that typing is getting to you, write to T A Bartley enclosing £2.00 for a copy of the game on tape: 81 Beverley Cres, Grimsby, South Humberside DN32 9TJ

```
1000 REM    DECIMAL LOADER
1010 POKE 23609,50
1015  PRINT "START TYPING IN DUMP ONE NUMBER AT A
TIME, EACH NUMBER FOLLOWED BY RETURN"
1020 LET T=0: FOR N=41886 TO 44777
1030 INPUT J: PRINT N,J: POKE N,J: LET T=T+J: NEXT N
1040  IF T<>321152 THEN  PRINT "DATA ERROR: CHECK
LISTING"
1050  IF T=321152 THEN  PRINT "DATA OK"
```

41886	0	0	0	0	3	0
41892	0	0	0	0	0	0
41898	0	0	0	0	0	0
41904	0	0	0	0	16	221
41910	110	14	221	102	15	124
41916	198	32	95	87	26	102
41922	119	35	19	26	102	119
41928	43	205	207	163	16	237
41934	204	37	124	230	7	254
41940	7	192	125	214	32	111
41946	230	224	254	224	200	124
41952	198	0	103	201	221	110
41958	0	221	102	1	205	33
41964	164	221	117	18	221	116
41970	15	201	17	164	226	229
41976	211	88	0	41	41	41
41982	25	235	226	201	229	192
41988	213	245	6	8	28	119
41994	37	19	16	250	241	169
42000	193	225	203	33	0	64
42006	17	1	64	1	205	23
42012	175	119	237	176	201	128
42018	15	15	15	200	31	111
42024	124	7	7	230	224	161
42030	111	124	230	7	0	124
42036	15	15	15	230	24	248
42042	64	143	8	183	103	201
42048	174	230	24	204	47	205
42054	47	203	47	198	80	102
42060	201	6	16	221	94	19
42066	221	86	20	221	150	14
42072	221	102	15	86	170	163
42078	167	32	14	126	203	65
42084	90	19	166	90	6	82
42090	1	59	166	163	201	26
42096	182	119	35	19	88	170
42102	163	167	32	14	26	203
42108	86	40	10	166	40	6
42114	62	1	56	166	163	204
42120	26	182	119	43	205	207
42126	163	19	16	201	201	209
42132	220	163	6	16	221	110
42138	14	221	102	15	221	94
42144	19	221	86	20	26	47
42150	165	119	19	35	26	47
42156	165	119	19	43	205	207
42162	163	16	239	201	17	0
42168	96	33	0	64	1	0
42174	24	237	176	201	80	125
42180	182	167	200	71	221	33
42186	129	162	197	221	203	7
42192	70	40	25	221	110	4
42198	221	102	1	221	94	3
42204	221	86	4	205	2	164
42210	221	110	5	221	107	6
42216	221	126	2	119	1	0
42222	0	221	9	193	16	216
42228	201	58	128	162	167	206
42234	71	221	33	129	162	192
42240	221	126	3	205	244	163
42246	221	115	3	221	114	4
42252	221	110	0	221	102	1
42258	205	64	164	221	117	5
42264	221	116	6	1	0	0
42270	221	9	193	16	220	201
42276	58	128	162	167	202	33
42282	159	163	58	120	92	190
42288	210	33	158	163	126	167
42294	40	2	53	201	54	5
42300	58	128	162	71	221	33
42306	129	162	197	221	203	7
42312	70	40	13	221	110	5
42318	221	102	6	126	230	64
42324	119	205	47	163	1	0
42330	0	221	9	192	16	228
42336	201	221	110	0	221	102
42342	1	221	94	3	221	86
42348	4	6	0	76	87	163
42354	40	20	217	206	85	171
42360	217	201	141	165	205	21
42366	171	33	169	163	53	221
42372	54	7	4	201	37	19
42378	16	227	201	221	110	9
42384	221	102	6	62	7	129
42390	221	110	0	221	102	1
42396	221	94	3	221	86	4
42402	6	0	26	47	163	119
42408	37	19	16	248	201	58
42414	122	163	167	200	71	221
42420	33	124	163	221	126	0
42426	205	244	163	221	115	0
42432	221	114	1	221	35	221
42438	35	221	110	0	221	102
42444	1	205	2	164	200	64
42450	164	58	123	163	119	16
42456	234	201	58	122	163	167
42462	200	71	221	33	124	163
42468	221	94	0	221	86	1
42474	197	213	221	35	221	35
42480	221	110	0	221	102	1
42486	205	254	165	209	193	16
42492	237	201	6	0	26	47
42498	166	40	4	62	1	58
42504	165	163	201	37	19	16
42510	241	201	62	61	205	244
42516	163	58	157	163	167	200
42522	71	33	128	87	200	2
42528	164	35	16	250	201	6
42534	6	17	52	166	33	128
42540	99	26	119	35	19	16
42546	250	201	65	70	67	69
42552	68	66	58	201	167	167
42558	205	71	221	33	202	162
42564	192	33	96	204	221	126
42570	2	167	40	7	71	17
42576	32	0	25	16	253	221
42582	117	11	221	116	12	221
42588	70	0	35	16	253	221
42594	117	16	221	116	17	1
42600	22	0	221	9	193	16
42606	213	201	20	201	162	167
42612	200	33	164	163	80	120
42618	92	190	200	119	221	35
42624	201	162	221	70	0	221
42630	35	197	205	241	160	221
42636	203	7	24	40	6	205
42642	147	164	205	161	160	167
42648	1	22	0	221	9	193
42654	16	231	201	205	6	169
42660	205	32	169	221	203	7
42666	20	32	18	221	203	7
42672	86	32	12	221	205	7
42678	94	32	11	221	203	7
42684	102	32	5	205	206	163
42690	24	3	205	10	167	221
42696	203	7	134	200	221	126
42702	1	221	205	7	29	46
42708	15	221	190	4	48	23
42714	221	203	7	214	221	205
42720	7	142	24	13	221	190
42726	5	56	8	221	203	7
42732	205	221	203	7	158	221
42738	203	7	70	221	70	3
42744	40	0	221	53	1	16
42750	201	195	102	167	221	92
42756	1	16	251	195	102	167
42762	221	126	0	221	203	7
42768	94	40	27	221	190	4
42774	32	56	221	126	13	167
42780	92	56	221	203	7	230
42786	221	203	7	138	205	6
42792	169	205	45	169	24	56
42798	221	190	5	32	29	221
42804	126	13	60	221	190	0
42810	32	20	221	203	7	222
42816	221	203	7	166	221	54
42822	13	0	205	6	169	205
42828	45	169	24	22	221	126
42834	15	167	37	16	62	0
42840	221	203	7	94	40	2
42846	237	56	221	134	0	221
42852	119	0	205	228	163	24
42858	1	205	77	164	205	114
42864	167	201	221	110	14	221
42870	102	15	124	230	7	254
42876	7	62	2	40	1	60
42882	0	205	64	169	229	17
42888	32	0	221	203	7	94
42894	40	14	221	126	5	214
42900	8	221	190	0	56	28
42906	35	35	24	17	221	203
42912	7	142	40	37	221	126
42918	4	198	7	221	190	0
42924	48	0	43	62	7	119
42930	167	237	82	119	221	126
42936	6	225	119	35	17	33
42942	4	119	167	237	82	0
42948	61	200	0	24	241	221
42954	203	7	20	40	13	221
42960	126	5	214	8	221	190
42966	1	56	221	25	24	18
42972	221	126	4	198	8	221
42978	190	1	48	208	8	71
42984	8	167	237	82	16	201

42990	62	7	119	35	119	24
42996	193	221	58	215	161	221
43002	70	0	221	25	197	221
43008	126	4	205	244	183	221
43014	110	0	221	102	1	229
43020	201	56	189	225	205	28
43026	168	1	6	0	221	9
43032	193	16	229	202	205	64
43038	168	221	126	3	8	221
43044	70	2	221	126	5	229
43050	119	35	16	252	225	17
43056	32	0	167	237	82	8
43062	61	206	24	222	221	70
43068	3	197	239	221	70	2
43074	205	2	164	35	16	236
43080	225	122	254	32	48	5
43086	1	32	7	24	3	1
43092	32	0	167	237	66	193
43098	16	229	201	35	192	189
43104	17	134	163	1	22	0
43110	237	176	201	58	110	162
43116	167	206	33	165	143	58
43122	120	92	190	200	119	33
43128	127	162	176	167	40	2
43134	53	201	54	5	36	113
43140	162	58	126	162	134	205
43146	204	163	221	33	114	162
43152	58	110	182	71	197	221
43158	110	0	221	102	1	221
43164	70	2	205	2	164	35
43170	16	254	221	35	223	35
43176	221	35	193	16	231	33
43182	126	162	58	111	162	167
43188	56	40	126	254	5	32
43194	3	54	0	201	52	201
43200	126	167	40	2	33	201
43206	54	3	201	58	110	162
43212	167	206	71	221	33	114
43218	162	197	221	110	0	221
43224	102	1	205	44	164	30
43230	112	162	221	70	2	119
43236	25	16	252	221	35	221
43242	35	221	35	193	16	227
43248	201	221	126	21	221	190
43254	10	40	4	221	52	21
43260	201	221	54	21	0	221
43266	203	7	190	201	221	203
43272	7	126	40	6	221	203
43278	7	94	52	7	221	110
43284	11	221	102	12	201	221
43290	110	16	221	102	17	201
43296	221	120	9	221	190	10
43302	40	3	221	52	10	24
43308	7	221	52	13	221	54
43314	16	0	221	126	0	167
43320	40	37	221	190	13	32
43326	4	221	54	13	0	221
43332	203	7	94	40	9	221
43338	126	13	190	253	237	68
43344	28	3	221	126	13	167
43350	40	7	1	32	0	9
43356	61	32	252	221	117	19
43362	221	116	20	201	0	143
43368	2	0	0	0	71	126
43374	4	0	3	33	205	0
43380	0	0	168	203	0	32
43386	201	0	201	33	113	174
43392	58	215	161	167	40	0
43398	71	17	11	0	221	28
43404	16	252	221	110	0	221
43410	102	1	1	151	0	17
43416	215	161	237	176	221	110
43422	2	221	102	3	128	30
43428	110	162	167	40	8	1
43434	16	0	17	110	162	237
43440	176	221	110	4	221	102
43446	5	126	50	120	162	167
43452	40	10	35	71	17	120
43458	162	197	1	4	0	237
43464	176	19	19	19	19	193
43470	16	243	221	110	6	221
43476	102	7	126	58	201	162
43482	167	40	23	35	71	17
43488	202	162	197	1	11	0
43494	237	176	229	213	225	17
43500	11	0	25	235	225	193
43506	16	250	221	110	0	221
43512	102	9	126	50	122	163
43518	167	40	6	17	122	163
43524	1	12	0	237	176	221
43530	126	10	50	162	163	201
43536	33	33	161	58	213	161
43542	167	40	7	71	17	9
43548	0	25	16	253	235	201
43554	33	120	162	6	9	197
43560	1	8	0	9	26	119
43566	19	193	16	245	201	33
43572	170	162	6	9	197	1
43578	8	0	9	126	18	19
43584	193	16	245	201	33	33
43590	161	17	34	161	1	179
43596	0	62	1	119	237	176
43602	201	0	0	0	0	0
43608	0	0	0	0	0	0
43614	0	0	0	0	0	83
43620	67	79	82	69	72	73
43626	83	67	79	80	69	86
43632	79	64	73	79	78	33
43638	135	87	34	83	170	6
43644	5	33	59	170	205	190
43650	170	33	147	87	34	83
43656	170	6	7	33	104	170
43662	205	190	170	33	224	67
43668	34	83	170	6	6	33
43674	131	170	205	190	170	201
43680	33	141	87	34	83	170
43686	6	5	33	85	170	205
43692	190	170	201	33	155	87
43698	34	83	170	6	5	33
43704	98	170	205	190	170	201
43710	197	229	126	205	244	163
43716	42	83	170	205	2	164
43722	33	83	170	52	225	35
43728	193	16	235	201	17	85
43734	170	42	98	170	24	6
43740	17	90	170	42	97	170
43746	1	240	216	205	10	171
43752	10	19	1	24	253	201
43758	10	171	19	19	1	156
43764	255	201	16	171	10	19
43770	1	244	253	205	10	171
43776	10	19	1	255	255	206
43782	10	171	18	206	175	9
43788	80	56	252	237	86	61
43794	190	88	201	175	221	110
43800	5	221	102	4	1	144
43806	226	237	66	1	248	255
43812	9	60	56	252	61	254
43818	16	32	3	1	10	0
43824	24	21	254	12	32	5
43830	1	25	0	24	12	254
43836	68	32	5	1	50	0
43842	24	3	1	104	0	42
43848	95	176	9	34	95	170
43854	205	212	120	205	180	170
43860	201	22	16	14	122	24
43866	7	62	16	211	254	230
43872	24	65	16	254	175	211
43878	254	66	16	254	13	32
43884	254	201	33	0	88	126
43890	254	2	32	2	58	0
43896	35	124	254	91	32	245
43902	201	42	36	172	70	35
43908	62	63	164	163	34	29
43914	172	120	201	236	7	125
43920	95	22	0	33	36	172
43926	25	94	35	86	235	233
43932	6	24	197	205	150	173
43938	205	70	173	193	16	246
43944	201	6	24	197	200	125
43950	173	205	9	173	205	150
43956	173	200	70	173	193	16
43962	240	201	6	32	197	205
43968	125	173	205	9	175	193
43974	16	246	201	6	24	197
43980	205	125	173	205	9	173
43986	205	46	172	208	203	172
43992	193	16	240	201	6	24
43998	197	205	46	172	205	203
44004	172	193	16	246	201	6
44010	24	197	205	126	172	205
44016	151	172	205	46	172	205
44022	203	172	193	16	240	201
44028	6	32	197	205	126	172
44034	203	151	172	193	16	246
44040	201	6	24	197	205	120
44046	172	200	151	172	205	120
44052	173	205	70	173	193	16
44058	240	201	0	0	156	171
44064	169	171	188	171	201	171
44070	220	171	233	171	253	171
44076	9	172	17	224	87	6
44082	23	197	213	6	0	192
44088	213	98	123	167	32	8
44094	46	224	122	214	6	103
44100	24	5	214	32	111	1
44106	32	0	237	176	209	21
44112	193	16	230	209	123	214
44118	32	95	254	224	32	4
44124	122	214	0	87	193	16
44130	208	33	0	71	205	164
44136	172	201	6	0	197	229
44142	229	205	19	175	119	1
44148	31	0	237	176	225	37
44154	193	16	239	201	6	192
44160	17	0	64	213	229	35
44166	197	1	31	0	26	237
44172	176	43	34	0	35	35
44178	19	193	16	200	201	62
44184	0	1	0	0	17	32
44190	24	33	223	87	205	213
44196	17	32	0	4	25	16
44202	253	65	4	35	16	253
44208	209	46	201	197	6	0
44214	75	13	213	205	205	0
44220	213	35	237	176	18	225
44226	17	32	0	25	209	193
44232	16	231	201	62	0	1
44238	0	0	17	32	28	33
44244	221	42	23	245	120	130
44250	71	121	131	79	213	17
44256	32	0	4	25	16	253
44262	65	20	16	253	209	64
44268	197	6	0	75	213	229
44274	17	32	0	167	237	82
44280	209	229	237	184	225	209
44286	193	120	16	234	241	67
44292	119	43	16	252	201	62
44298	6	1	0	0	17	32
44304	24	33	223	87	21	245
44310	120	134	71	121	131	79
44316	213	17	32	0	4	25
44322	16	253	65	35	16	253
44328	205	66	4	241	197	6
44334	0	75	13	213	229	209
44340	0	213	43	237	164	18
44346	225	17	32	0	167	237
44352	82	205	193	16	231	201
44358	62	0	1	0	0	17
44364	32	24	33	223	87	245
44370	213	17	32	0	4	25
44376	16	253	65	4	35	16
44382	253	209	66	5	197	6
44388	0	75	213	229	17	32
44394	0	25	209	229	237	176
44400	229	200	193	126	16	236
44406	241	67	119	35	16	252
44412	201	6	192	17	203	67
44418	215	225	45	197	1	31
44424	0	26	237	144	25	54
44430	0	43	43	27	193	16
44436	240	251	17	0	64	6
44442	23	197	213	6	0	197
44448	213	98	123	254	224	32
44454	0	44	0	122	198	8
44460	163	20	3	198	32	111
44466	1	32	0	237	176	209
44472	26	193	16	227	209	125
44478	198	32	95	167	32	4
44484	122	188	0	87	193	16
44490	200	35	224	87	205	186
44496	172	201	33	231	98	58
44502	171	163	167	200	71	62
44508	2	197	6	5	119	35
44514	16	251	40	193	16	245
44520	58	171	163	71	33	231
44526	87	197	229	6	5	62
44532	64	209	244	183	229	205
44538	2	164	35	16	250	193
44544	16	237	201	58	171	163
44550	167	205	56	170	163	167
44556	32	70	62	203	219	254
44562	236	31	87	62	192	219
44568	254	182	250	31	200	62
44574	1	30	170	163	53	172
44580	163	58	120	92	190	200
44586	119	33	173	163	126	167
44592	80	2	53	201	34	5
44598	42	175	163	229	6	0
44604	126	203	39	119	37	16
44610	253	167	221	192	45	34
44616	175	163	50	174	163	61
44622	80	4	30	174	163	201
44628	62	5	50	174	163	50
44634	171	163	61	55	171	163
44640	33	236	87	29	135	125
44646	129	133	161	34	175	163
44652	175	58	178	163	201	144
44658	175	16	174	247	175	77
44664	175	23	174	255	25	176
44670	221	176	196	176	21	176
44676	231	176	255	58	177	174
44682	177	145	177	243	176	164
44688	177	255	240	177	120	178
44694	95	178	192	177	130	178
44700	255	230	178	112	179	75
44706	179	150	170	120	179	255
44712	185	179	57	180	40	180
44718	130	179	50	180	29	182
44724	180	10	181	245	180	64
44730	180	25	181	58	82	181
44736	198	181	183	181	26	181
44742	205	181	29	24	187	158
44748	182	121	182	213	181	183
44754	182	15	253	182	149	183
44760	124	183	175	182	156	183
44766	58	231	183	127	184	90
44772	254	184	143	137	184	60

The QL Page



Random words

by Richard Hoptroff

This week, the remainder of the listing for the Random Words program, plus the program notes.

Program Notes

In Line 280, the name of the main character is defined. Then, in the *Data* statements at the end, the computer is taught all the other words it knows. If a printer is to be used, the word *Remark* should be removed from Line 280.

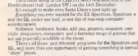
Your own personal words can be added to the *Data* file but the variables in Lines 10 and 40 should be altered to total thus:

- **NCj** – Number of conjunctives (and, but ...) minus one. These must appear at the beginning of the *Data* block, at Line 2000.
- **NSj** – Number of subjective nouns (I, he, she ...) minus one. The *Data* for these starts at Line 3000.
- **NPs** – Number of personal pronouns (my, his, her ...), minus one. This *Data* starts at Line 4000.
- **NNb** – Number of "numbers" (the, a), minus one. This *Data* is on Line 4990.
- **NNn** – Number of nouns (brussel sprout, size nine chucker boot, kitchen sink ...), minus one. This *Data* starts at Line 5000.
- **NVb** – Number of past tense verbs (attacked, nibbled ...), minus one. This *Data* starts at Line 6000.
- **NAj** – Number of adjectives (homicidal, half eaten ...), minus one. This *Data* starts at Line 7000.
- **NCm** – Number of comments (then, meanwhile ...), minus one. This *Data* starts at Line 8000.
- **NAv** – Number of adverbs (frantically, suddenly ...), minus one. This *Data* starts at Line 9000.
- **NQt** – Number of quotes ("Go jump in a lake", "You smell like a ..."), minus one. This *Data* starts at Line 10000.
- **NPh** – Number of verbs or phrases of the form noun, verb, adjective, (wasn't tried hard to be ...) minus one. This *Data* starts at Line 11000.
- **NWy** – Number of reasons why (for tax reasons, for the money ...), minus one. This *Data* comes last at Line 12000.
- **Lin** – Number of verbs that require a noun after them, minus one. These verbs must be at the beginning of the verb *Data*.
- **Snn** – Number of quotes needing nouns to finish them, minus one. These quotes must be at the beginning of the quote *Data*.

```
1210 fin$=
1220 END DEFine
1240 DEFine PROCedure Caps(hjk$)
1250 LOCal fred$,ted
1260 IF Cp=0 :ans$=hjk$:RETurn
1300 ted = CODE(hjk$(1)) Cpl 0:IF ted>95:ted=ted-32
1310 IF LEN(hjk$)=1:ans$=CHR$(ted):RETurn
1320 fred$=CHR$(ted) & hjk$(2 TO)
1340 ans$=fred$
1360 END DEFine
1400 DEFine PROCedure An(hlk$)
1410 IF an=0:Caps(hlk$) PRINT 'ans$',RETurn
1420 an=0:IF hlk$(1) INSTR "aeiouAEIOU":Caps("an"):PRINT  ans$'hlk$':RETurn
1430 Caps("a"):PRINT 'ans$'hlk$'
1440 END DEFine
1500 DEFine PROCedure Noun
1510 Caps(N$(RND(NNn))) IF ans$= a  .an=1:RETurn
1511 IF ans$= A :an=1:Cp=1:RETurn
1520 PRINT  ans$
1530 END DEFine
2000 DATA  before , when , and then , but , but , after , and , and , because
3000 DATA  I , I , Neil Kinnock , Mrs Thatcher , he , she , it , they
4000 DATA  his , her , my , the , my , the , its , their , its
4990 DATA  the , the , a
5000 DATA  compat , chain saw , kitchen sink , parrot , Sloane Ranger , spare ends , slice of lemon , wheelbarrow , brick , evangelist
5001 DATA  prawn coctail , iceberg', oyster , eucalyptus tree , camel , Chesterfield sofa , pair of socks , spring onion , kitten pebble'
5002 DATA  gnome , dingo , size nine chucker boot , duckbilled platypus , unknown globule , mug of hot tea , cloud , coffee percolator , pot of daisies , penguin
5003 DATA  lamp , four letter word , vodka martini , teddy bear , philosopher , aunt , bolt of lightning , broadsword , black hole , glass of water
5004 DATA  glob of mucus , brussel sprout , button , elephant , pint of Guinness , wooden leg , aspidistra , moron , shady character , punk
5005 DATA  termite , sewage works , lizard
6000 DATA  ate , made love to , changed into , fell into , submerged it in , nibbled , surprised , created , gobbled up , crucified
6001 DATA  disposed , exorcised , resurrected , decimated ,'stole , crashed into , escaped from , shot   looked like , smiled
6002 DATA  felt like , turned into , found , searched in vain for , force fed it with , got married to , graffitied all over , embraced , hit it with , groped
6003 DATA  stole , gave him , aggravated , pretended to be , gave birth to
6500 DATA  snoried , started a revolution , disappeared , temporarily died , went on holiday , went to jail ,"tried to, but couldn't", refused , appeared
7000 DATA  green spotted , blubbery , furry , deranged , Yiddish , alcoholic , enormous ,'nubile , three-legged , angry
7001 DATA  horrendous , mutant , perilous , magic , ubiquitous , dead , red striped , lumpy , infamous , stupid
7002 DATA  blind drunk , existential , primeval , fat , raucous , intelligent , rather large , bouncy , retarded , extremely tall
7003 DATA  temperamental , smelly , carnivorous , unknown , hairy , manically depressed , little , antique , grotesque , bemused
7004 DATA  electronic , stylish , homicidal , nauseous , massive , greasy , dirty
8000 DATA  then , next , soon , meanwhile , still , however
9000 DATA  viciously , quickly , slowly , accidently , publicly , suddenly , frantically , temporarily , half-heartedly
10000 DATA 'Go and seek the , Go and mutate into a ,'Go and find everything but the',"I ve got a", I wish I was a ,'You must slay a , You look like a , Go stick your head in a ,'I ve just seen the', Ooh, I could easily handle a
10001 DATA  You smell like a
10500 DATA  Go jump in a lake. , Go forth and multiply. ,"Mine's bigger than yours.", Pog off. , Tum te tum te tum
11000 DATA  was , tried hard to be ,"wasn't", looked , felt  "didn't like being","pretended to be", knew what it was like to be
12000 DATA  , for tax reasons. ,", being in awe of these words  , - but then, why not? , , for the money. ," - who wouldn't?"
```







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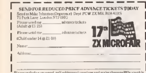
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HAVE YOU MET...

L.A. Bruce

YOU WILL IN...



BANK STATEMENT

by John Clarke

This is a program for the BBC B to provide a quick and easy Bank Statement. To run it, you'll need a disc drive (although it can be adapted for tape) and possession of an Epson (or Epson compatible) printer would be useful.

To start the program up from scratch, load and run it, type 'W' (for Write), press "1" and enter the details as requested – don't forget to Save all the entries when you have finished. Typing 'P' (for Print) will give you a copy printout from any part of the statement.

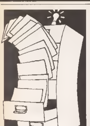
You are limited to 99 entries, which should last most people for a year more or less. But by altering the two lines 630 and 760 to 'BANK2' instead of 'BANK1' then a continuation statement is available, and continues over as many discs as required.

```
 10 REM BANK STATEMENT
 20 REM by John Clarke
 30 REM Emax3:D$max8:M$max10:Dmax8:Cmax8:
    Bmax8
 40 @%=&0002020E
 50 *TV255,0
 60 MODE7:VDU15
 70 PRINT'''"WHITE letters on BLUE....A"''
    "BLACK letters on YELLOW....B"''''"CHO
OSE by PRESSING the letter required":A$=GET
    $:IF A$<>"A" AND A$<>"B" THEN 60
 80 IF A$="A" THEN MODE3:VDU19,0,4,0,0,0
 90 IF A$="B" THEN MODE3:VDU19,1,0,0,0,0,
    19,0,3,0,0,0
100 DIMT$(99),A$(99),D(99),C(99),B(99),P$
    (10)
110 I%=99
120 PROCload
130 ON ERROR GOTO 140
140 IF ERR=17 THEN 170
150 IF ERR=222 THEN CLOSE£0:GOTO 170
160 ON ERROR REPORT:PRINT" error line
    "ERL:GOTO170
170 PROCheading
180 REPEAT
190 PROCinfo
200 UNTIL FALSE
210 END
220     DEFPROCheading:VDU28,0,1,79,0
230 PRINT"No";TAB(6)"DATE"TAB(17)
    "METHOD"TAB(37)"DEBIT"TAB(50)"CREDIT
    "TAB(63)" BALANCE"
240 ENDPROC
250     DEFPROCinfo
260 PROCbase_window
270 PRINT" L-LOAD   S-SAVE   P-PRINT
    R-READ   W-WRITE   E-END   A-ALTER an
    entry"
280 A$=GET$:IF A$="R"PROCread
290 IF A$="W"PROCwrite
300 IF A$="S"PROCsave
310 IF A$="P"PROCprint
320 IF A$="L"PROCload
330 IF A$="A"PROCalter
340 IF A$="E" CLEAR:MODE7:PRINTTAB(14,8)
    ;"STOPPED":FOR L= 11 TO 12:PRINTTAB(8,
L);CHR$141;CHR$134;"HAVE YOU SWAPPED":NEXT:
    FOR L= 15 TO 16:PRINTTAB(7,L);CHR$141
;CHR$131;"HAVE YOU SAVED":NEXT:END
350 ENDPROC
360     DEFPROCtop_window
370 VDU28,0,21,79,2:CLS
380 ENDPROC
390     DEFPROCbase_window
400 VDU28,0,24,79,22:CLS
410 ENDPROC
420     DEFPROCread
430 PROCheading
440 PROCtop_window
450 FOR N%=1 TO I%
460 N$=STR$(N%)
470 PRINTTAB(0);N$TAB(6);T$(N%)TAB(18);A$
    (N%),D(N%),C(N%),B(N%)
480 NEXT N%
490 ENDPROC
500     DEFPROCwrite
510 PROCheading
520 PROCbase_window
530 CLS:INPUT"Item no:"I%:CLS
540 PROCentry_date:CLS
550 PROCentry_method:CLS
560 PROCentry_debit:CLS
570 PROCentry_credit:CLS
580 IF I%=1 B(1)=C(1)
590 IF I%>1 G=B(I%-1):B(I%)=G-D(I%)+C(I%)
600 PROCread
610 ENDPROC
620     DEFPROCsave
630 X=OPENOUT"BANK1"
640 *FX200,1
650 FORN%=1 TO I%
660 PRINT£X,T$(N%),A$(N%),D(N%),C(N%),B(N%)
670 N$=STR$(N%)
680 PRINTTAB(0);N$TAB(6);T$(N%)TAB(18);A$
    (N%),D(N%),C(N%),B(N%)
690 NEXT N%
700 CLOSE£X
710 *FX200,0
720 ENDPROC
730     DEFPROCload
740 *FX200,1
750 PROCtop_window
760 Y=OPENIN"BANK1"
770 N%=1
780 REPEAT
790 INPUT£Y,T$(N%),A$(N%),D(N%),C(N%),B(N%)
800 N$=STR$(N%)
810 PRINTTAB(0);N$TAB(6);T$(N%)TAB(17);
    A$(N%),D(N%),C(N%),B(N%)
820 N%=N%+1
830 UNTIL EOF£Y:I%=N%-1
840 CLOSE£Y
850 *FX200,0
860 ENDPROC
870     DEF PROCentry_date
880 LOCAL A$,B$
890 PRINT"DATE:";
900 A$=""
910 B$=GET$
920 IF B$=CHR$13 THEN T$(I%)=A$:PRINT:
    ENDPROC
```

```
930 IF B$=CHR$13 AND A$<>"" THEN =A$
940 IF B$=CHR$127 AND A$<>"" THEN VDU127;
    A$=LEFT$(A$,LEN(A$)-1):GOTO910
950 IF LEN(A$)=6 THEN VDU7:GOTO910
960 A$=A$+B$:PRINT B$;:GOTO 910
970     DEF PROCentry_method
980 LOCAL A$,B$,C$
990 PRINT"METHOD:";
1000 A$="":C$="     "
1010 B$=GET$
1020 IF LEN(A$)<5 AND B$=CHR$13 THEN
    A$=A$+C$:M$(I%)=A$:ENDPROC
1030 IF A$=CHR$13 THEN M$(I%)=A$:ENDPROC
1040 IF B$=CHR$13 AND A$<>"" THEN =A$
1050 IF B$=CHR$127 AND A$<>"" THEN VDU127:A$
    =LEFT$(A$,LEN(A$)-1):GOTO1010
1060 IF LEN(A$)=10 THEN VDU7:GOTO1010
1070 A$=A$+B$:PRINT B$;:GOTO 1010
1080     DEF PROCentry_debit
1090 LOCAL A$,B$
1100PRINT"DEBIT:";
1110 A$=""
1120 B$=GET$
1130 IF B$=CHR$13 THEN D(I%)=VAL(A$):
    PRINT:ENDPROC
1140 IF B$=CHR$13 AND A$<>"" THEN =A$
1150 IF B$=CHR$127 AND A$<>"" THEN VDU127;
    A$=LEFT$(A$,LEN(A$)-1):GOTO1120
1160 IF LEN(A$)=7 THEN VDU7:GOTO1120
1170 A$=A$+B$:PRINT A$;:GOTO 1120
1180     DEF PROCentry_credit
1190 LOCAL A$,A$
1200 PRINT"CREDIT:";
1210 A$=""
1220 B$=GET$
1230 IF B$=CHR$13 THEN C(I%)=VAL(A$):
    PRINT:ENDPROC
1240 IF B$=CHR$13 AND A$<>"" THEN =A$
1250 IF B$=CHR$127 AND A$<>"" THEN VDU127;
    A$=LEFT$(A$,LEN(A$)-1):GOTO1220
1260 IF LEN(A$)=7 THEN VDU7:GOTO1220
1270 A$=A$+B$:PRINT B$;:GOTO 1220
1280     DEFPROCprint
1290 LOCAL N%,P%
1300 PROCbase_window
1310 CLS:INPUT"Print from which no:-";P%
1320 VDU2:*FX200,1
1330 PRINT"No:"TAB(6)"DATE"TAB(18)"METHOD"
    TAB(37)"DEBIT"TAB(50)"CREDIT"TAB(63)"
BALANCE":PRINT''
1340 FOR N%=P% TO I%
1350 N$=STR$(N%)
1360 PRINTTAB(0);N$TAB(6);T$(N%)TAB(18);
    M$(N%),D(N%),C(N%),B(N%)
1370 NEXT N%
1380 VDU3:*FX200,0:ENDPROC
1390 DEFPROCalter
1400 S%=I%
1410 PROCbase_window
1420 PRINT"Altering an item Y/N"
1430 A$=GET$:IF A$="N" THEN ENDPROC
1440 PROCwrite
1450 FOR N=I% TO S%-1
1460 I%=I%+1
1470 B(I%)=B(I%-1)+C(I%)-D(I%)
1480 NEXT
1490 PROCread
1500 ENDPROC
```

VERSATILE FILE

by Wail Sabbagh



This week we present your final helping of listing plus the rest of the explanation of the Primary Menu Two

4) Load/open a new data file
This option simply moves the user to Central menu (primary menu 1).

5) Sort date file
This option will sort the data file in ascending order, upon any field

6) Save data file
This option will save any changes or addition to tape or disc If these changes are not saved then any update will not be recorded This option offers the following choices

1) Format new disc
2) Validate disc
3) View disc directory
4) Save file to disc
5) Save file to tape
6) Return to control menu.

7) Edit menu
This menu is concerned with updating the current data file Records can be edited or deleted, the file name can be changed, file pointers can be zeroed (deleting the file while maintaining current structure), and the password can be changed or deleted (before any chance is made to the state of the password, the old password must be stated) This option offers the following

1) Edit one record.
2) Delete one record
3) Reset file pointer
4) Change file name
5) Change delete password.
6) Return to control menu.

8) File data
This option will explain to new users the structure of the file, it also displays the current status of Com File It gives the following information:

1) Name of file
2) Number and name of fields in file
3) Number of records used so far
4) Amount reserved for current data file
5) Type of protection to data file

9) Calculation menu
This option allows the user to numerically manipulate the data file It must be noted at this point that non numeric fields are given the value 0. This option offers the following:

1) Find total and average of a field.
2) Add/delete a percentage – most useful in cases such as adding 15% VAT to all items in file This option moves to a second level secondary menu which offers addition or subtraction
3) +, –, /,* a constant to a field. A constant value can be added, subtracted, etc to all records This option also moves to a second level menu offering addition, subtraction, multiplication or division.

10) Exit com file
End the session and returns to Basic

```
10070 PRINT PRINTE■
10080 PRINT PRINT
10090 PRINT"■PRESS■ A KEY TO RETURN TO CONTROL MENU"
10100 GET A$
10110 IF A$=""THEN 10100
10115 IF R0=1THEN R0=0 GOTO 1000
10120 GOTO 2000
11000 REM■■■■■■EDIT MENU■■■■■■
11010 PRINT"■■OPTION■ 7"  ■EDIT FILE■
11020 PRINT"------------------------------------"
11030 PRINT PRINT PRINT
11040 PRINT"      ■PLEASE SELECT CHOICE■"
11050 PRINT
11060 PRINT"       ■1■ EDIT 1 RECORD" PRINT
11070 PRINT"       ■2■ DELETE 1 RECORD" PRINT
11080 PRINT"       ■3■ RESET FILE POINTER" PRINT
11090 PRINT"       ■4■ CHANGE FILE NAME" PRINT
11100 PRINT"       ■5■ CHANGE/DELETE PASS WORD" PRINT
11110 PRINT"       ■6■ RETURN TO CONTROL MENU"
11120 GET A$
11130 IF A$<"1" OR A$>"6"THEN 11120
11140 A=VAL(A$)
11150 ON A GOTO 11200,11400,11600,11700 11800,2000
11200 REM■■EDIT 1 RECORD■■
11210 PRINT"■"
11220 PRINT"  >.■ENTER RECORD NO TO EDIT■.<"
11230 PRINT PRINT INPUT"■ ■" R
11240 IF R>CO OR R<1THEN E$="RECORD NO OUT OF RANGE" GOTO 10000
11250 PRINT"■■RECORD NO■ " R
11260 PRINT"------------"
11270 FOR X=1TONF
11280 PRINT"■" X  ■   ■" F$(X) "■   " A$(R X)
11290 NEXT X
11300 PRINT"------------------------------------"
11310 INPUT"■ENTER■ NO TO EDIT / 0 TO MENU" F IF F=0THEN 11000
11320 IF F<1ORF>NF THEN GOTO 11250
11330 PRINT PRINT"  ")A$(R,F)
11340 PRINT "■■" IF LEN(A$(R F))>30 THEN PRINT"■■■"
11350 INPUT A$(R F)
11360 GOTO 11250
11400 REM■■DELETE 1 RECORD■■
11410 PRINT"■"
11420 PRINT"  >.■ENTER RECORD NO TO DELETE■.<"
11430 PRINT PRINT INPUT"■ ■" R
11440 IF R>CO OR R<1THEN E$="RECORD NO OUT OF RANGE" GOTO 10000
11450 PRINT"■■RECORD NO■ " R
11460 PRINT"------------"
11470 FOR X=1TONF
11480 PRINT"■" F$(X) "■   " A$(R,X)
11490 NEXT X
11500 PRINT"------------------------------------"
11510 PRINT"ARE YOU SURE (■Y■ ■N■)"
11520 GET A$ IF A$=""THEN 11520
11530 IF A$="Y"THEN 11550
11540 GOTO 11000
11550 PRINT PRINT"■■■ DELETING RECORD ",R," FROM "N$
11560 FOR Y=R+1TOCO FORY=1TONF
11570 A$(Y-1 Y)=A$(X Y)
11580 NEXTY ( CO=CO-1
11590 GOTO 11000
11600 PRINT"■THIS OPTION WILL DELETE ALL DATA IN FILE"
11610 PRINT PRINT PRINT"ARE YOU SURE (■Y■ ■N■)"
11620 GET A$ IF A$=""THEN 11620
11630 IF A$<>"Y"THEN 11000
11640 CO=0 GOTO 2000
11700 PRINT"■■CHANGE FILE NAME"
11710 PRINT PRINT PRINT"CURRENT FILE NAME IS ",N$
11720 PRINT PRINT"■ENTER■ NEW FILE NAME"
11730 PRINT INPUT"■.■" N$
11740 IF LEN(N$)<1 OR LEN (N$)>16 THENN$="■■■■■■" GOTO 11700
11750 GOTO 11000
11800 PRINT"■"
11807 IFP$="COM SALAM"THENE$="NO PASS WORD PRESENT" GOTO 10000
11810 PRINT"■PLEASE ENTER FORMER PASS WORD"
11820 PRINT PRINT PA$=""
11830 INPUT"■ ■ PA$
11840 IF PA$<>P$THEN11000
11845 PRINT PRINT"■■DELETE OR ■CHANGE PASS WORD"
11850 GETA$ IFA$=""THEN11050
11860 IF A$="D"THENP$="COM SALAM"GOTO 11000
11870 IF A$<>"C"THEN 11000
11890 PRINT"■■ENTER■ NEW PASS WORD"
11900 PRINT PRINT INPUT"■ ■" P$ IFLEN(P$)<1ORLEN(P$)>12THEN 11800
11910 GOTO 11000
12000 REM■■■■OPTION ■■■■■■
12010 PRINT"■■OPTION■ 9"  "■CALCULATION MENU■"
12020 PRINT"------------------------------------")
12030 PRINT PRINT PRINT
12040 PRINT"      ■PLEASE SELECT CHOICE■"
12050 PRINT
12060 PRINT"       ■1■ FIND TOTAL & AVAREGE" PRINT
12070 PRINT"       ■2■ ADD / DELETE  A % " PRINT
12080 PRINT"       ■3■ +   / *  A CONSTANT" PRINT
12090 PRINT"       ■4■ RETURN TO CONTROL MENU"
12130 GET A$
12130 IF A$<"1" OR A$>"4"THEN 12100
12135 IF A$="1" OR A$="2" OR A$="3" THENSW=0 GOSUB 12950 IF SW=1THENGOTO 10000
12140 A=VAL(A$)
12150 ON A GOTO 12200,12500 12500 2000
12200 REM ■■■FIND AVARAGE■■■■
```

```
12210 PRINT"J"
12220 PRINT"NON NUMERIC FIELDS WILL BE TREATED AS 0"
12230 T=0 FORX=1TOCO
12240 T=T+VAL(A$(X,FL)) NEXTX
12250 PRINT PRINT PRINT
12260 PRINT"AVARAGE AND TOTAL OF ",F$(FL)
12270 PRINT PRINT"TOTAL =",T PRINT
12280 PRINT"AVARAGE=" T/CO
12290 GOTO 13100
12300 REM *****ADD/SUBTRACT/******
12310 PRINT"J"
12320 PRINT"  ADD          SUBTRACT        RETURN"
12330 GET A$ IFA$<>"A"ANDA$<>"S"ANDA$<>"R"THEN12330
12340 IF A$="R"THEN 12000
12350 IFA$="A"THEN OP=1
12360 IFA$="S"THEN OP=2
12370 PRINT PRINT"ENTER PERCENTAGE (0-99%)":PRINT INPUT"D,R",PR
12380 IFPR<0ORPR>99THENPRINT"J" GOTO12370
12385 PRINT PRINT PRINT"OK WORKING"
12390 FORX=1TOCO Y=VAL(A$(X,FL))
12400 IF OP=1 THENY=100+PR
12410 IF OP=2 THENY=100-PR
12420 Y=(Y*Y)/100 A$(X,FL)=STR$(Y)
12430 NEXTX
12450 GOTO 12000
12500 REM*** */X ******
12510 PRINT"J"
12520 PRINT"ADD  SUBTRACT  DIVIDE  MULTIPLY  RETURN"
12530 GETA$ IFA$="S"THENOP=1 GOTO12600
12540 IFA$="A"THENOP=2 GOTO 12600
12550 IFA$="D"THENOP=3 GOTO 12600
12570 IFA$="M"THENOP=4 GOTO 12600
12580 GOTO 12530
12600 INPUT"JENTER CONSTANT ",PR:PRINT"WORKING"
12610 FORX=1TOCO Y=VAL(A$(X,FL))
12620 IFOP=1THENY=Y-PR
12630 IFOP=2THENY=Y+PR
12640 IFOP=3THENY=Y/PR
12650 IFOP=4THENY=Y*PR
12660 A$(X,FL)=STR$(Y) NEXT GOTO 12000
12900 REM****SELECT FIELD*****
12960 PRINT"J"
12970 PRINT"  >,ENTER FIELD TO BE USED<"
12975 PRINT PRINT INPUT"D R" FL
12980 IF FL>NF ORFL<0THEN ER$="FIELD VALUE OUT OF RANGE" ER=1
12990 RETURN
13000 PRINT"J"
13005 PRINT"OPTION 8", "FILE DATA"
13008 PRINT"--------------------------------"
```

```
13010 PRINT"NAME OF FILE ";N$
13020 PRINT"IT CONSIST OF ",NF "FIELDS"
13030 PRINT"NO OF RECORDS RESERVED FOR ENTRY",CE
13040 PRINT PRINT "--------------------------------"
13050 PRINT"NUMBER OF RECORDS USED SO FAR ";CO
13060 PRINT PRINT"--------------------------------"
13070 IF P$="COM SALAM" THEN PRINT N$;" IS NOT PROTECTED BY PASS WORD"
13080 IF P$<>"COM SALAM" THEN PRINT N$," IS PROTECTED BY PASS WORD"
13090 PRINT PRINT PRINT "HIT A KEY FOR NEXT PAGE"
13100 GET A$ IF A$=""THEN 13100
13110 PRINT"JOPTION 8", "FILE DATA"
13120 PRINT"--------------------------------"
13130 PRINT" ,------------------,"
13140 PRINT"|FIELDS USED IN FILE|"
13150 PRINT" '------------------'"
13160 PRINT FORX=1TONF
13170 PRINT"FIELD ",X " IS CALLED ";F$(X)
13180 NEXTX
13190 PRINT PRINT"  HIT A KEY FOR CONTROL MENU"
13200 GET A$ IF A$=""THEN 13200
13210 GOTO 3000
14000 GOTO 14000
60000 REM READ DIRECTORY SUBROUTIN
60005 OPEN 1,8,0 "$0" CLOSE1 IFRO=0THENGOSUB 61000
60007 IF RO=1THEN GOSUB 1900
60010 PRINT"J" OPEN1,8,0 "$0" GET#1 V$,Y$
60020 I=0 GET#1,V$ V$,Y$,X$ IF Y$<>""THENI=ASC(Y$)
60030 IF X$<>""THEN I=I+ASC(X$)*256
60040 PRINT RIGHT$("  "+STR$(I) 3)," ", I=0
60050 GET#1 V$ IF ST GOTO 60140
60060 IF V$=CHR$(34) THENI=I+1:PRINT CHR$(34);:GOTO 60050
60070 IF I=0THEN 60050
60080 IF I=1 THEN PRINT V$; GOTO 60050
60090 IF I=2 THEN PRINT TAB(22), I=I+1
60100 IF I=3ANDV$=" "GOTO60050
60110 IF V$<>" THEN PRINTV$;:GOTO 60050
60120 PRINT GETV$ IFV$<>""THEN GOSUB 60100
60130 IF ST=0THEN60020
60140 PRINT"BLOCKS FREE":CLOSE1
60150 PRINT PRINT"HIT A KEY"
60160 GETV$ IFV$=""THEN 60160
60170 RETURN
60500 IF PA$<>P$THENPRINT"ILLIGAL ENTERY TO "J$P$ END
60510 RETURN
61000 REM****READ ERROR CHANNEL****
61010 OPEN15 8 15 INPUT#15,ER,ER$ CLOSE15
61020 IF ER=0THEN RETURN
61030 ER$="DISK ERROR "+ER$
61040 GOTO 10000
```


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Many machine code listings are given, starting with a simple sorting routine which is developed to a full database program.
There are graphics routines to extend Basic with Circle and Fill commands, and a section explaining how easily you can write your own extensions to Basic using the 'BAR' commands.
Written with the beginner in mind, this book is the best introduction to machine code on the 464/664/6128 machines.
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To find out if you are a prize winner this week this is what you must do

1) Key in the computer program listing printed here into your micro and *Run* the program.

2) Input your special **Micro Magic** number as data in the program when requested and press *Enter*.

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Micro Magic: Week 9 Program listing

This week's winning Micro Magic Numbers: 515896 and 1387480

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is the only interface which is Viewfax/Micronet approved (granted 18/7/85) and you can download software using the telesoftware format developed by us in conjunction with Viewfax256. This means that you can access the many free Amstrad programs currently on the system and all the other programs about to be put up
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3-D plotter on Spectrum by Paul Rhodes

This machine-code routine produces a '3D' picture of the graph of a function. Whilst the program draws the graph fairly quickly, the user still has to set up the values to be plotted – a slow job even in machine code, as the pattern generator listed here shows.

The 3D effect is simple but effective, and is produced by using the value to be plotted as a displacement added on to the height of a point on a predetermined diagonal line. So if all values are 0, a parallelogram is produced.

Values to be plotted are stored in a table after the program – the address of the start of the table can be found by: *Peek 50936+ 256*Peek 50939*, and changing the values of these two locations will make the program use any area you choose for the table. The table consists of a 40*40 array: the first 40 bytes are the top line of the graph, the next 40 are the second line, and so on.

To enter the program, either use an assembler or type in the hexloader, enter C736 as the start address and C7C6 as the finish, and type in the bytes from the listing, up to eight at a time (not separated by spaces). Do not enter the checksums until asked for them. Save the code with: *Save "3Dplot" Code 50998,150*

To run the program *Randomize Usr 51000*. The other listing can be entered in the same way, using FF58 and FFA0 as start and finish. To run it (make sure you already have the 3Dplot routine in place) *Randomize Usr 65368*

After a delay of five minutes, a 'wave' pattern should appear.

```
HEX LOADER

 1 DEF FN B(A$)=CODE A$-48-7*(A$>"9")
 2 DEF FN H(A$)=FN B(A$(1))*16+FN B(A$(2))
 3 DEF FN A$(A)=CHR$(A+48+7*(A>9))
 4 DEF FN H$(A)=FN A$(INT (A/16))+FN A$(A-16*INT (A/16))
 5 POKE 23658,8 :REM CAPS LOCK ON
10 INPUT "START?";LINE A$:LET START=FN H(A$)*256+FN H(A$(3 TO))
15 INPUT "FINISH?";LINE A$:LET FINISH=FN H(A$)*256+FN H(A$(3 TO))
20 FOR A=START TO FINISH STEP 8
25 PRINT FN H$(INT (A/256));FN H$(A-256*INT(A/256));
30 LET C=0
40 INPUT LINE A$:LET A$=A$+
50 FOR B=0 TO 7:IF A$(1)=" " THEN INPUT LINE A$:LET A$=A$+" "
60 LET Z=FN H(A$):LET A$=A$(3 TO):POKE A+B,Z:PRINT " ";FN H$(Z);:LET
C=C+Z
70 NEXT B:INPUT "CHECKSUM:";LINE A$:IF FN H(A$)<>C-256*INT (C/256)
THEN PRINT "CHECKSUM INCORRECT":GO TO 25
80 PRINT: NEXT A
```

```
HEX FOR 3D GRAPH PLOT, WITH CHECKSUMS
C736 C8 C7 21 00 40 11 01 40 =47
C73E 01 FF 17 36 00 ED B0 D9 =C3
C746 E5 D9 11 C8 C7 3E 28 12 =B9
C74E 2A 36 C7 3B 22 C9 C7 3A =2E
C756 C9 C7 23 22 C9 C7 7E 32 =15
C75E C8 C7 1A B7 C6 44 B6 47 =07
C766 1A B7 C6 13 4F 3E 28 13 =42
C76E 12 C5 B3 CD E5 22 B1 C1 =12
C776 2A C9 C7 23 22 C9 C7 3A =C9
C77E C8 C7 3C E8 44 86 47 7E =47
C786 32 C8 C7 08 03 CB A0 C7 =06
C78E 11 C8 C7 21 CC C7 35 28 =B7
C796 20 BE 35 C2 55 C7 D9 E1 =C8
C79E D9 C9 79 1E 01 CB 7F 28 =AC
C7A6 05 ED 44 1E FF 4F A7 20 =69
C7AE 02 1E 00 16 01 78 CB 7F =F9
C7B6 28 05 ED 44 16 FF 47 A7 =61
C7BE 20 02 16 00 C5 CD BA 24 =A8
C7C6 C1 C9 00 00 00 00 00 7C =06
```

```
HEX FOR 3D WAVE SET-UP, WITH CHECKSUMS

FF58 06 28 0E 28 C5 79 CD 38 =98
FF60 2D 3E 14 CD 28 2D EF 03 =93
FF68 31 04 38 C1 C5 78 CD 28 =60
FF70 2D 3E 14 CD 28 2D EF 02 =93
FF78 31 04 0F 28 A3 05 1F A4 =07
FF80 A7 04 04 38 CD D5 2D C1 =72
FF88 2A 36 C7 11 28 00 A7 ED =F4
FF90 52 08 78 19 30 2B FC 39 =9D
FF98 19 08 77 00 20 BE 10 BA =4D
FFA0 C3 2B C7 2B 80 36 FF 27 =0F
```

Assorted Graphics Routines on Sinclair QL by Dave Barnett

Here are a selection of short graphics routines for the QL. None of them break new programming ground, but some of the results are quite interesting.

```
10 REMark "circle",program by Dave Barnett (1984)
10 PAPER 0:CLS
20 INK RND(255):PAPER RND(255)
30 CIRCLE RND(150),RND(50),RND(40),RND(4),RND(300)
40 IF RND(75) THEN RUN
50 GO TO 120
100 REMark "light",program by Dave Barnett (1984)
10 REMark After running the program,try changing line 120 to fill 0
30 FOR x=1 TO 255
40 INK RND(255)
50 LINE TO 100+40*SIN(x*2),50+40*COS(x)
60 END FOR x
100 REMark "flash",program by Dave Barnett (1984)
10 CLS
20 INPUT "what resolution do you want (medium or high)";res$:IF "m" INSTR res$<>
0THEN MODE 256:ELSE MODE 512
30 PAPER 0:INK 7:CLS
40 INPUT "Do you want fill on or off "(Y or N)";a$:IF a$="y" THEN FILL 1:ELSE F
ILL 0
50 CLS:PRINT"Press (esc) at any time to exit program"
60 PRINT "After you have read the message press space to continue "
70 IF INKEY$<>CHR$(32) THEN GO TO 170
80 INK 7:CLS
90 CIRCLE RND(150),RND(50),RND(40),RND(4),RND(300)
100 IF INKEY$=CHR$(27) THEN STOP
110 GO TO 180
```

3-D Cube on Amstrad by Glen Campbell

This program calculates the rotation of a cube in 3D and projects it on to the screen in real-time. The maths is quite ingenious, but the screen does flicker as the cube rotates – however, the result is still quite nice. *n* governs the square size, *m* governs the speed of rotation.

```
10 INK 0,0 BORDER 0:DEG:MODE 2:ORIGIN 320,200:n=150:m=5
20 FOR x=0 TO 360 STEP m
30 a=n*COS(x):b=0:c=n*SIN(x)
40 d=-(c*c)/n:e=a:f=a*c/n
50 g=f:h=c:i=d-n
60 CLS:INK 1,0
70 MOVE (a+d+g)/2,(b+e+h)/2:DRAWR -d,-e:DRAWR -g,-h:DRAWR d,e
80 MOVE (-a-d+g)/2,(-b-e+h)/2:DRAWR d,e:DRAWR -g,-h:DRAWR -d,-e
90 MOVE (a-d+g)/2,(b-e+h)/2:DRAWR -a,-b:DRAWR -g,-h:DRAWR a,b
100 MOVE (-a+d+g)/2,(-b+e+h)/2:DRAWR a,b:DRAWR -g,-h:DRAWR -a,-b
110 INK 1,26:NEXT x
```

Book Ends

Book *Microholics* **Price** £1.95 **Micro** Any **Supplier** Unwin Paperbacks, 40 Museum Street, London WC1A 1LU

A man stands by a micro with disc drives and printer, running a home computer accounts package. He holds a yard or so of printout and says to his wife, "Or in other words, we've spent a small fortune just to tell us we're broke."

Microholics is a collection of cartoons, some sexist, most unfunny, by Richard Howell who, according to the blurb, possesses an 'acute eye'. There's no hint of it here nor sign of the artistic talent.

Strangely, Mr Howell's jaundiced look fails to see as far as opportunistic publishing like this, aimed fairly and squarely at the Christmas gifts market. The theory is that the non-computerate half of the population will buy it for their micro-obsessed friends in the belief that they will find it funny.

I'm going to make sure my aged aunt knows not to, well in advance.

John Minson

Book *Peeks and Pokes for the Commodore 64* **Price** £7.95 **Micro** C64 **Supplier** First Publishing Unit 20B Horseshoe Road Horseshoe Industrial Estate Pangbourne Berks

That owners of the C64 have special needs for Peeks and Pokes, in particular those concerned with graphics and sound owing to the machine's inadequate Basic is one of computing's great truisms.

This book, another of First Publishing's English editions of German Data Becker volumes, deals with these and many other reasons for directly addressing the micro's memory. In fact, there's so much in its hundred odd pages, culminating in a machine code simulator and discussion of assembly language, that clarity is sacrificed.

Text which definitely reads like a translation plus transposed sections and typographical errors neither help nor instill confidence.

There are many other books which will fill the needs of the novice Poker better, although it's just possible more experience programmers will find the odd useful tip here.

John Minson

Book *Graphics Programming Techniques on the Amstrad CPC 464* **Price** £7.95 **Micro** Amstrad CPC 464 **Supplier** Micro Press Castle House 27 London Road, Tunbridge Wells, Kent.

Don't be put off by the fact that this book contains rather a lot of listings, it's far more serious than it first appears.

Wynford James uses the listings to demonstrate various techniques that can exploit the CPC 464's graphics capabilities starting from Basic.

From the very beginning – the modes of screen display and ink colours – he uses examples and hands-on experience to illustrate the theory, and commendably covers relatively complex topics such as Fill.

He makes a logical progression through the problems and solutions involved in such topics.

There are chapters on shape drawing, animation, graphs and charts and pattern making, avoiding the old myth that graphics from Basic will let you create arcade games or artistic masterpieces.

It's a much more practical approach that will teach a good deal of programming technique.

John Minson

Code Words

Name: Sandy White

Author of Ant Attack and I, of the Mask

"I used to build electronic projects in magazines and when the Sinclair Mk 14 came along I built that – my first computer.

I learnt to program using the manual supplied with it – it was awful! The Mk 14 used a simple National Semiconductor chip and so when the Z80 came along it looked horribly complicated as did Rodney Zaks' book – it was so thick!

I think the best advice for anyone who wants to learn about machine-code programming is to begin with just a few simple instructions – gradually try a few more as you need them. It's useful to have someone who already knows a bit of code around to help. Despite its difficulty I'd say the Rodney Zaks' book on the Z80 is a vital purchase.

I don't really use any utilities, I have a *Picturesque Assembler* but don't use it much. More useful is networking Spectrums together to keep the code secure. I also have a hex development system which puts in the code as a memory map and is thus crash-proof.

I don't really play other people's games so I can't comment technically on their work but I do like Jeff Minter.

I think my own greatest achievement was to create a full screen of solid perspective graphics and move them around at ten times a second. My ideal program, my ambition if you like, is a development of what I've already done. It would be like looking at reality as filmed by a roving video camera that you could control."

Name Sandy White
Age 25
Favourite Programs
I can't think of any games I really like although I have lots of them. The only exception is *Scrabble* – I set it to play against itself and watch it make crosswords. I like and use *Melbourne Draw* a lot.

Favourite Machines
I think my favourite machine is the Amstrad just because it's a complete package and has decent sound. I have a couple of Spectrums and look forward to the 128K especially because of the Midi. I also use a Commodore 64 with a Midi package.

Software
3D Ant Attack, Zombie, and *I, of the Mask*.

Hobbies
Music: I have a DX 7. I play the drums and have fantasies about being a pop star, but I can't play it properly, only by programming music via computer. I also like chemistry, blowing things up and making nasty smells. I also make films – at one time I used to enter them for a children's program called *Screen Test* but they'd always send back a form letter telling me to use a tripod or something. Actually I always did use a tripod, I think it was the chopping people's heads off and spurts of blood from squeezy bottles that caused the problems.

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Starion kips

To start off this week here, as promised, is the invincible man routine for *Fairlight* from Chris Allen. To use it type in the code wind the original game tape past the first header of the first program (ie the part that prints FL on the screen) *Run* the program you have typed in and start the tape when it tells you to The program uses the screen at some points so don't worry about the blue border or the mess that you see

Four sectors

Now then, I must thank everyone for all the help they gave in response to our pleas for *Starion* tips It isn't really worth anyone else sending any more in for a while I am hoping to dedicate a special issue of the Avenue to the new games from Melbourne House, which seem to be getting better and better including *Starion* and the tips you have sent in for *Fist*.

I've thought long and hard about the *Starion* tips I don't want to give much away since solving the anagrams does a lot to stop the game from being just another boring shoot up, but it can be extremely frustrating if you pick the wrong time zone with your hard won word and have to fight your way out again For now we will restrict the answers to just the first four sectors to make sure that people can get started

Sector 1 – Redbreast
Asprin – 1893
Telegram – 1858
Starion – 1985
Electricity – 1831
Bible – 1968
EEC – 1957
Diamonds – 1897
Beatrvity – 1905
Rhodesia – 1980
Sector 2 – Spacewalk
Coal – 1764
Krakatoa – 1883
Preface – 1086
Leonov – 1965
Armada – 1588
Axe – 1587
Seal – 1764
Egbert – 0814
Wellington – 1815
Sector 3 – Establish
Treaty – 1919
Atom – 1942
Hitler – 1924
Spectrum – 1982
Ivan – 1647
Ballast – 1783
S – 1901
Lamp – 1889
Eiffel –
Sector 4 – Parachute
Avon – 1963
Tobacco – 1565
Umbrella – 2222 BC
Rubber – 1888
Penny – 1840
Cakes – 1789
Halley – 1986
Aerial – 1896
Everest – 1953

Anthony Torak of Leicester has written to claim to be the first to reach Elite status on the Commodore version of the game We certainly haven't heard of anyone else doing so but probably only Firebird can say for sure

Brilliant kick

Anthony offers some tips on the game which we would be grateful for particularly now that many more people will be playing it, but the same applies to anyone who is doing well with the game We would be most interested in tips about the new aspects of the different versions since the BBC copy has been around for some time

Thank you all also for your *Blackwyche* tips and these too will go into a special column dedicated to the game Darren Riley is one of those who has written in but he also has some more special codes for the CBM version (and perhaps others) of *Bounty Bob* "On the game adjustment screen enter 57602 and then press 'A' and F3 together You can then play the game as normal or you can go to any screen you wish to by typing the number on the keyboard. For example '21 takes you to screen 21 and '09' takes you to screen 9 You can wrack up massive scores this way Other codes to try are 5, 6, 40, 49 69, 100, 66 815, 1000, 2049 (surprise surprise!) You just press F3 to activate them. My high score without cheating is 91990 on screen 10"

This thing with *Bounty Bob* strikes me as a brilliant trick, it doesn't make it too easy to cheat since there is still a challenge to find all of the codes but it still means that ultimately everyone can get to see all screens

While on the subject of platform games Stephen Trill of Sidcup wants tips and pokes for Mirrorsoft's brilliant *Dynamite Dan* It's quite a relief now that platform games are beginning to drop off in number to see that good new versions of the idea are still possible D Moison of Jersey asks if it is possible to actually rescue Esmeralda on the Amstrad version of Ocean's *Hunchback*. Well, you can't on the Spectrum version but as people have complained in the past I did hope Ocean may have added this to new versions

Record times

Another Ocean game, *Decathlon*, is the subject of a letter from Jason Hall who tips that you can get record breaking times by jiggling two joysticks at once Of course the presence of a close friend helps here

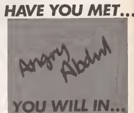
Finally here's a letter from Brian Thompson of Beckenham who has completed the CCS wargame *Arnheim* We occasionally get wargame letters full of long complicated solutions but no one here quite knows what to do with them.

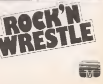
They don't fit into the arcade or adventure columns as they stand, so I'm throwing this open to the readers Let *Popular* know if you would like wargames covered

Tony Kendle

```
1 [illegible]
2 [illegible]
3 [illegible] HACKED BY [illegible]
4 REM
5 REM [illegible] NOTHING [illegible]
7 LET [illegible]
8 CLS
9 FOR [illegible]
20 LET [illegible]
30 IF [illegible] THEN [illegible]
40 PRINT AT [illegible]
50 RANDOMIZE USR [illegible]
100 DATA [illegible]
101 DATA [illegible]
102 DATA [illegible]
103 DATA [illegible]
104 DATA [illegible]
105 DATA [illegible]
106 DATA [illegible]
```


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ROCK'N WRESTLE

Tony Bridge's Adventure Corner

Deflated

Melbourne House and Adventure International are two of the biggest adventure-writing outfits around at the moment, and much of their success has been gained by taking themselves very seriously in the market-place. Their programs are very clever and can certainly stand a little deflation.

Which is where Delta 4 and Silversoft come in. *Sherlock* and *Robin of Sherwood* are good candidates for a bit of gentle leg-pulling, a challenge very quickly taken up by Fergus McNeill and all the other loonies at Delta 4.

One can only guess at what goes on in a mind obsessed with Penguins and Judith (I haven't met any penguins, myself) but as long as it keeps coming up with parodies such as *Bored of the Rings* and now *Robin of Sherlock* who are we to argue? The Jester with his henchperson, The Desperado, has once again turned from thoughts of fish to extracting the Michael from respected adventures.

There's a certain atmosphere present in all Delta 4 (now marketed by Silversoft) adventures – the player has the definite feeling of being followed if not by a slavering ghoul, at least by a laughing clown. The puzzles included in the typical Jester adventure are not mind searing, but rather giggle-provoking and those met in the present program are more of the same hardly demanding, but nevertheless interesting and creating echoes of other, maybe more well-known adventures.

The location descriptions are also in the usual McNeill mould – right at the start for example, you'll find that good old Friar Gorbachetnik succumbs to a surfeit of Venisonburgers in a rather spectacular fashion (resulting in 'lots of bits of Friar'!) Not far from here lies the Kentucky Fried Squirrel House, with copious amounts of Squirrel 'n' Fries (but no Penguinburgers), and a definitely dodgy Convent (don't forget to get the habit!)

On and Off

Robin of Sherlock is *Quill'd*, *Illustrated* and *Patch'd* (all acknowledged, I'm glad to say) and thus features good split-screen graphics/text, weird sound effects and the very useful Ram save and load – so progress is very quick. Particularly as the graphics can be switched on and off at will and, anyway, pictures are only drawn on the first visit to a location (unless otherwise instructed).

With the rustic character set and the good use of colour, this is an attractive adventure to play – as I've said, the puzzles are not numerous, and neither are they particularly taxing, but there are many useable objects, and these will keep you occupied for some while. Characters, unusually for a *Quill'd* game, carry on their own existence (it says here), and you are encouraged to indulge in deep conversation with them. Here is the joke at the expense of *Sherlock* – characters may be asked to supply their alibi or to split on another character, but there seemed to be a standard, non helpful response to my questions, and much of the character 'interreaction' seemed to consist of Dorothy (her from *Wizard of Oz*, don't ask me why) or Marion wandering in and out of the scene. However, it should be possible to ask them about a certain aspect of the adventure, although you run a good risk of getting your ear chewed off (or your pains!

The adventure is very pretty, though, with a nice character set, occasionally highlighted in cyan, contrasting with the normal white-on-black. The graphics are quickly-drawn, with much use of repeated blocks (subroutines as experienced *Illustrators* will know them) and as there isn't much shading, the whole process is nicely speeded up.

Robin of Sherlock from Delta 4

A good laugh

Delta 4 adventures all suffer from the author's devotion to style rather than content, absolutely nothing wrong with this approach as long you want a good laugh and a few rib-nudging references to some of the old favourites – a good time be had by all, but don't expect brainteasers of the Level 9 standard.

While we're wandering about in this neck of the adventuring woods (the 'let's treat this thing as a lark' neck), let me mention that dubious seat of learning in County Donegal, St Bride's School. I'm always glad to receive the regular newsheet (rather like a school magazine sent out to old pupils) from this establishment which is for the education of, it seems, rather mature gentlewomen. It's actually an extreme form of torture which said mature gentlewomen submit themselves to as their ideal of a way to spend a holiday, and pretend that they are back in the '30s.

Black on cyan

The Secret of St Bride's is the latest software product of the school, and it's been well received by many magazines. I've just had my first glimpse of the adventure – pretty standard *Quill'd* and *Illustrated* stuff, with a nice black on cyan layout and objects picked out in light colours. You wake up one morning in your dorm along with the other girls, only to find that the others, dotty as they are, seem to believe that they are actually living in the 1930s – you know of course that this is actually the 80s, so what is going on?

Being a good adventurer, you must find out *The Secret*.

By examining everything, many objects will be found and then it is a matter of finding the right place to use the objects. So the adventure can be worked through quite logically, with not too many big surprises. And, thanks to Audiogenic's influence, the program is implemented quite professionally.

I look forward to the next adventure from St Bride's, if only to see another of its bizarre press releases!

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand.

Fill in the coupon explaining your problem, send it to us, and a fellow adventurer may be able to help.

Remember – the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure .... on (Micro) ....

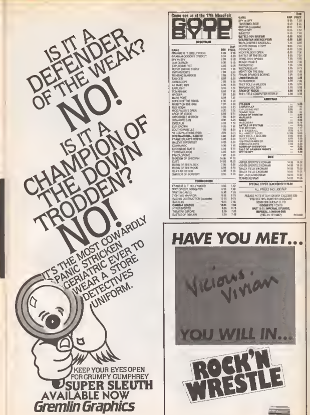
Problem ....

....

Name ....

Address ....

....



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Kampston compatible

Colin Watts of Newcastle upon Tyne writes

Q **Is the Spectrum + upgrade kit compatible with a Kempston joystick, on an issue 2 Spectrum, as I have heard there may be a problem?**

A All the connection problems with the plus are caused by the interface slot being 'guarded' by a lightly raised portion of the keyboard casing. In order to check whether your existing interfaces will fit into the new slot it should only be necessary for you to look closely at the back of a plus. In terms of other types of compatibility, I have not heard of any problems with it.

Language programming

S A Taheri of Canterbury, Kent, writes

Q **I have recently obtained a degree in Maths, Stats and Computing, and I would now like to buy a computer to do language programming (Pascal or Fortran)**

I can spend up to £1,000, including a printer and monitor. Could you help me find something suitable?

A There are not many Fortran packages produced for the home micro market, but there are Fortran implementations which run under CP/M

Amstrad's CPC 6128 is CP/M compatible. The micro costs £299 complete with disc drive and monochrome monitor, and £399 complete with disc drive and colour monitor. Amstrad's DMP 2000 printer costs just £159, so you would be well within your price limit.

Commodore's new 128 machine will also run CP/M programs, but ideally you will need its new 1570 disc drive and 1901 80 column monitor. Neither of the latter are yet available, but have been promised before Christmas. For the 128, 1570, 1901, and Commodore's own printer the MPS 801, expect to pay just under £1,000.

Interestingly enough, there is a Fortran program for the Sinclair QL which doesn't need CP/M. It is from Prospero Software at 190 Castleau, London SW13. A QL would cost £199, and Sinclair's own monitor £299

Two printers which can be used are Mannesmann Tally's dot matrix (with centronics interface) at £250, or Brother's HR5 (RS232 interface) at £167. There is a comparatively large number of languages available for the QL, particularly from Metacomco and HiSoft.

Implementations of Pascal can be found for almost all home micros

Disabled keyboard

Pamela Sellick, of Abingdon, writes

Q **I have a Spectrum approximately 18 months old. After being on for a short time, the keys in the end columns cease to work. Gradually the other keys also fail. Switching the computer off for a while seems to temporarily remedy the problem. I would like to know whether the problem would disappear by fitting one of the new 'official Spectrum upgrades' to turn the machine into a Spectrum Plus. If not how can the computer be repaired?**

A It sounds to me as if the fault lies in the keyboard membrane, which sits underneath the rubber keypad. It would seem as if this has split or worn in such a way that when the machine heats up the connection(s) are broken, thus effectively disabling your keyboard!

The Spectrum up-grade as it involves fitting a new membrane (owing to the different keyboard layout), should indeed cure your problem

Dragon repairs

A T Edwards, of Ystradgynlais Powys, writes.

Q **While loading a program into my Dragon 32 it suddenly crashed, after leaving the din plug in the socket I turned the machine on and off. This resulted in a screen with characters strewn all over it. Many attempts to clear the screen have failed.**

Do I require a new chip? If so do Dragon Data do such repairs, if not where can I get it repaired?

A It sounds to me as if you need a new something, but exactly what is difficult to determine. I think that if you asked Dragon Data about repairing your machine you might have a long wait for an answer!

You could try a firm called Mi-Crowe of 49 Wykenham Road Drive, Basingstoke, Hants RG23 8HW (0256 23858). They repair Dragon 32's for £15 plus the cost of parts. Alternatively, try Compusense, PO Box 169, 286a Green Lanes, London N13 5XA (01-882 0681).

Screen messages

I Stokes of Rhyl, Clwyd, Wales, writes

Q **Can you please tell me how to eliminate *Program name* or *Bytes name* appearing on the screen? I have assembled programs with a *Screen* picture only to find that when the next part is loading I get these messages displayed across the screen. I have tried to fill the screen with *Print* statements but to no avail, since it then scrolls the screen up to put out the message. Is it possible to change its colour? I own a Spectrum**

A One very simple way is not to print on the bottom line of the user screen, but to issue a *Print At* statement for line 21, column 32 (*Print at 20,31*). This has the effect of forcing the message to be printed on the 22nd line of the screen.

Then by setting *Ink* to be the same colour as paper, you will achieve the desired effect without scrolling. It must be remembered that the *Print At* statement must be executed before each *Load* statement

Lynx characters

Terry Stevens of Plymouth, writes

Q **Firstly, I own a Lynx (remember them?). I want to be able to display large characters on the screen (two or even three times normal height.) Is there any way that this can be done?**

As you can imagine it's not easy to find much information on any machine these days

A I may be able to help you here. VDU24 and VDU25 will give you double height characters. For even large ones try *Poke* &6273,96 (*Poke* & 6273 32 puts things back to normal)

Screen copies

M Payne of Coventry writes

Q **Is there a way of getting a full screen copy of any picture? If you load in a commercial tape, eg. *Lunar Jetman*, you then have to *Break* to *Copy*, which then loses the bottom few lines**

A Firstly, I guess that you have a Spectrum. Secondly, try this

```
10 LOAD "" SCREEN
20 COPY
```

When this Basic program is entered and *Run*, it will search a cassette for a screen picture, which when loaded is then dumped to the printer (intact)

If you want to copy to cassette, then use *Save* "" *Screen* instead of *Copy* on line 20

TOUCH PAD
SCREEN ARTIST

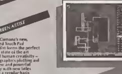
SCREEN ARTIST

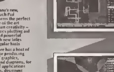
Cumana's new, improved Touch Pad with Screen Artist forms the perfect combination of state of the art technology and human creativity – an easy-to-use graphics plotting aid with a brand new and powerful software library with new titles being added on a regular basis.

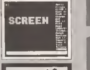
Screen Artist software has a host of ingenious features for producing creative designs and graphics, illustrations, plans and diagrams, for an infinite variety of applications from interior designs, designing electrical circuits and creative pictures. With Screen Artist, the bounds of artistic skill and invention are virtually limitless.

SCREEN ARTIST (DRAWING COMMANDS)

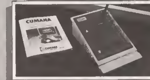
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- ... load routin...
- ... ction and shadow
- ... compatible

















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1	(1)	Winter Games	(US Gold)	£9.95
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Bubbling Under

Gyroscope/Spectrum (Melbourne House); Computer Hits (9)/Spectrum (Beau Jolly), Scarabaeus/C64 (Ariolasoft), Tau Ceti/Spectrum (CRL); Waterloo/C64/Spectrum (Warmaster), Infodroid C64 (Ultimate); I of the Mask/Spectrum (Electric Dreams), Spike/Spectrum (Firebird); Battle of Britain/Amstrad (PSS)

All figures compiled by Gallup/Microscope

Top Twenty

1	(–)	Commando *(Spectrum/C64)*	Elite
2	(1)	Elite *(Spectrum/C64/Spectrum)*	Acornsoft
3	(4)	Winter Games *(C64)*	US Gold
4	(–)	Rambo *(Spectrum/C64)*	Ocean
5	(3)	They Sold A Million *(Spectrum/C64/Amstrad)*	Hit Squad
6	(–)	Fight Night *(C64)*	US Gold
7	(2)	Formula One Simulator *(Various)*	Mastertronic
8	(–)	Tomahawk *(Spectrum)*	Digital Integration
9	(8)	Computer Hits (10) *(Various)*	Beau Jolly
10	(16)	Back To Skool *(Spectrum)*	Microsphere
11	(6)	Way Of The Exploding Fist	Melbourne House
12	(11)	Beach Head 2 *(Spectrum, C64, Amstrad)*	Access/US Gold
13	(5)	Finders Keepers *(Spectrum, C64, Amstrad)*	Mastertronic
14	(10)	Monty On The Run *(Spectrum/C64/Amstrad)*	Gremlin Graphics
15	(10)	BMX Racers *(Spectrum, C64)*	Mastertronic
16	(15)	International Karate *(Spectrum)*	System 3
17	(12)	Frank Brunos Boxing *(Spectrum, C64, Amstrad)*	Elite
18	(8)	Action Biker *(Spectrum, C64)*	Mastertronic
19	(–)	Arcade Hall Of Fame *(Spectrum, C64)*	US Gold
20	(7)	Robin Of The Wood *(Spectrum, C64)*	Odin

Figures compiled by Gallup/Microscope

Readers' Chart No 53

1	(1)	Way of the Exploding Fist *(Spectrum/C64/Amstrad)*	Melbourne House
2	(2)	Fairlight *(Spectrum)*	The Edge
3	(3)	Hypersports *(Spectrum/C64)*	Imagine
4	(5)	Monty on the Run *(Spectrum/C64)*	Gremlin Graphics
5	(4)	Red Moon *(Spectrum/C64/Amstrad/BBC/Electron)*	Level 9
6	(–)	Elite *(Spectrum/C64/BBC/Electron)*	Firebird/Acornsoft
7	(5)	Nightshade *(Spectrum)*	Ultimate
9	(7)	Spy vs Spy *(Spectrum/C64)*	Beyond
9	(–)	Daley Thompson's Supertest *(Spectrum)*	Ocean
10	(–)	Flight Simulator II *(C64)*	Sub-Logic

Winning Phrase No 53: "Why do I try? I fail so often" from Darren Gregory, Bispham, Blackpool, Lancs who receives (to his surprise no doubt) £25. Honourable mentions to Andrew Gallagher of Altringham, Cheshire with "Who hit tight Get on Soft Kid?" and Andrew Toy of Crawley, Sussex with 'Terry Wogan raises lots of gelt"

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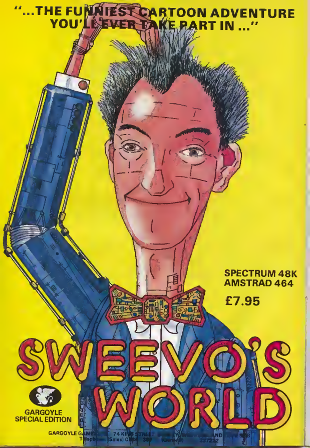
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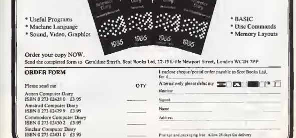
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New Releases

GOOD CHOICE

Automata are still around and producing some stunningly cheap compilation tapes The 10 pack volume two has ten games for £10 that makes each one half the usual price of a budget game It's a mixture of straightforward (well, maybe not straight but forward certainly) arcade games and twisted adventures, with a fruit machine program and a cocktail database to round off your evening of play

I particularly liked *Paradise in Microdot* which is one of the more bizarre adventures I've ever played, and *Pi in the Sky* is the sort of entertaining arcade game that exemplifies what a budget game ought to be

A good choice for uncertain aunties who don't know what program to buy for computer-owning relatives, or for those who've just bought a Spectrum and want a lot of material quickly

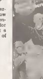
Program *10 Pack*
Price *£10*
Micro *Spectrum*
Supplier *Automata*
PO Box 78
Southsea
Hants PO4 9SL

GRAND SCALE

Tombstowne, the latest Amsoft release, is a multiscreen large sprite game broadly in the style of some of Mikro-Gen's recent *Wally* games The task is to rescue the lost pages of the book of spells from the Castle

Getting the pages involves finding your way around the various rooms of the castle and finding and using a variety of objects

The graphics are, in places, excellent almost *Sorcery* like in detail and design, on the other hand sometimes when sprites pass one another you get what almost seems to be attribute problems – a nasty flickery effect



In some ways this is like *Manic Miner* played on a grand scale but with the bonus of some intelligence being required to know what to do where to get from one room to another My criticism would be that the game lacks a certain spark

Perhaps that's an overly personal judgement, though which comes from seeing too many such games Worth a look for sure

Program *Tombstowne*
Price *£8.95*
Micro *Amstrad*
Supplier *Amsoft*
169 Kings Road
Brentwood
Essex

RIGHT LEVEL

Versions of, well let's be careful and say games like *Trivial Pursuit*, since TP isn't the only grand quiz game, are beginning to crop up on computer Mostly they are dire

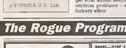
One that isn't dire, although it still suffers some of the basic failing of this sort of computer replication, is *Quiz Quest* from Alligata Software It's neatly presented and easy to use and, best of all, the questions seem to have been set at the right level for averagely well informed (British) adults you have to stretch your brain a bit

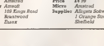
The basic idea is simple, a main program to handle the presentation and then a number of files on tape contain 1,000 questions on pop, TV, general knowledge and sport etc Questions are answered using a multiple choice format and there is a facility to enter your own files

As quiz programs go this is one of the best though for what it's worth I think I prefer question cards over computers every time

Program *Quiz Quest*
Price *£4 99*
Micro *Amstrad*
Supplier *Alligata Software*
1 Orange Street
Sheffield

The Rogue Program

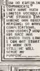






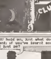


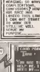












Created entirely using a BBC micro and an AMX mouse

continued next week

New Releases

À DROITE

More goodish educational software from Chalksoft. After their excellent economy simulation comes *Centre Ville*, a disc based Fench language teaching program. Actually it is three programs in one, all intended for beginners in the language

Centre Ville, the title game is all about issuing simple direction instructions to the hapless M. Chou who comes to Centre Ville sans map and who wants to visit just about every sight in the town. If M. Chou were for real I think I'd have murdered him pretty quickly, his chirpy smile and waving hand remind me of those born-again Christians who try to stop you in the street

Nevertheless, in issuing M Chou with his instructions, quite a lot of French is tested and surreptitiously taught Using a menu option, where a large number of directions indications are printed (in French), M. Chou must be guided around the streeM of Centre Ville, eg. go straight on, turn right, straight on, turn left, etc, etc

Get M. Chou to his chosen destination and there he is grinning inanely at you It isn't only a matter of getting the directions right, you also have to be as economic as possible in your directions – the less commands the higher the score – this, of course, means knowing your French.

The other programs are concerned with colours and telling the time, both are well designed and neatly presented but, for me, lack the unforgettable quality of M Chou and his interminable requests for information.

Program *Centre Ville*
Price *£17.50*
Micro *BBC*
Supplier *Chalksoft*
PO Box 49
Spalding
Lincs PE11 1NZ

EXOTIC BUGS

The Young Ones has been turned into a computer game Impossible, you say?

Yep dead right, Orpheus has tried it, and what a mistake it has turned out to be

Here are the good points it does feature little animated figures who look vaguely like the characters in the TV programme and Orpheus seems to have spent a lot of time trying to inject wild wacky anarchic humour into the game I mean, Neil begins all his utterances with 'Oh Man' and Rick uses the word 'girly'

Pick of the week

CLASSIC VIRTUES

Ariolasoft s most recent release *Think!* is the sort of program you might easily miss or ignore

Not an arcade game or an adventure, almost totally lacking in animation, it is a board game for the computer A board game in the sense that you move pieces on a board which is a six by six grid of squares and where the kind of strategy, brains and cunning you might use in chess are paramount

The virtues of *Think!* are really nothing to do with computers or computer programming, it is simply a wonderfully addictive and ingeniously designed game. It has dim connections with *Connect 4* but only in terms of the overall objective – to get four pieces in a row either vertically, horizontally or diagonally

Pieces are placed, turn by turn, on either the bottom or right hand edges of the board, existing pieces in the same row or column are moved along one space as each piece is placed It has the classic board game virtues – simple rules which can nevertheless lead to astoundingly complex board positions Furrowed brows and intense concentration required

The game is nicely presented, with hint and puzzle solving options, record of moves made, instant replay and a host of different display options You can, of course, play against the computer and at the highest levels it will show you it thinking, by a flashing cursor that whizzes around the perimeter of the board indicating possible moves. The Spectrum, is, at the highest levels, almost unbeatable (that 'almost' is important – so far as the authors of the game know, there is no logical, algorithmic reason why the computer should be unbeatable)

The ideal program with which to intimidate the family at Christmas

Program *Think!*
Price *£7.95*
Micro *Spectrum*
Supplier *Ariolasoft*
Asphalte House
Palace Street
London SW1E 5HS

This Week

Program	Type	Micro	Price	Supplier
Deathwake	Arc	Amstrad	£7 95	Quicksilva
Renegade	Arc	Amstrad	£7 95	Koma
Strangeloop	Arc	Amstrad	£8 95	Virgin Games
Stock Market	Ed	Amstrad	£14 95	Collins
Time Manager	Ed	Amstrad	£14 95	Collins
The Worm in Paradise	Ad	BBC	£9 95	Level 9
Astro Plumber	Arc	BBC	£2 50	Blue Ribbon
Citadel	Arc	BBC	£9 95	Superior
Diamond Mine II	Arc	BBC	£2 50	Blue Ribbon
Dr Who - Mines	Arc	BBC	£19.95	Micro Power
Joey	Arc	BBC	£2 50	Blue Ribbon
Ravage	Arc	BBC	£2 50	Blue Ribbon
Artist	Ut	BBC	£2.50	Blue Ribbon
Play and Read	Ed	BBC B	£28 95	Prisma Soft
The Worm in Paradise	Ad	Commodore 64	£9 95	Level 9
Deathwake	Arc	Commodore 64	£7 95	Quicksilva
Fight Night	Arc	Commodore 64	£9 95	US Gold
Friday the 13th	Arc	Commodore 64	£8 95	Domark
Gyroscope	Arc	Commodore 64	£7 95	Melbourne House
Scalextrix	Arc	Commodore 64	£8 95	Leisure Genius
Starion	Arc	Commodore 64	£8 95	Melbourne House
The Young Ones	Arc	Commodore 64	£7 95	Orpheus
Zorro	Arc	Commodore 64	£9 95	US Gold
Commando	Arc	Elite	£7 95	Elite
Q-Calc	Ut	QL	£8 95	Psientific
The Worm in Paradise	Ad	Spectrum	£9 95	Level 9

– this is called character independence in the trade.

The game looks vaguely like *Frankie*, since the characters wander about the rooms of the Young Ones' student house, displayed as double storey. Your view depends on where things are happening – you see whichever room your chosen character is in and another room where a lot is going on.

Commands are all issued via the joystick, *à la Frankie*, using a series of menus headed *Action*, *Walk*, *Talk*. The first leads to options such as opening cupboards and picking up objects, *Talk* leads the character to offer suggestions about what he should do and what he wants, eg, "I'd really like to smash the video" and *Walk* enables you to move the character to another room. The game revolves around acting as characters eg, Vyvyan tends to like destroying things.

So it goes and as such the game would merely be dull. However, the whole thing is chock full of bugs and bad programming. Bad programming takes the form of speech bubbles that flicker wildly if too much is going on at once, and become illegible.

Bugs are more exotic: the syntax logic in the speech bubbles appears to have downed a few too many dodgy pills leading to such remarkable utterances as *I think I should Open the Mikes Bed* (sic). Sometimes these descriptions disappear over the borders of the screen.

The whole thing is a mess and clearly isn't ready for release although it is redeemed by some excellent music which will entertain you for around ten minutes. The question that creeps into my mind now is, what have all those magazines which have previewed and raved about this game been looking at?

Program *The Young Ones*
Price *£7.95*
Micro *Spectrum*
Supplier *Orpheus, The Smithy, Church Farm, Hadley St. George, Beds SG19 3HP*

MANKIND

Hypa Raid is one of the latest batch of budget titles from Atlantis Software who were in there fighting at the beginning with Mastertronic. *Hypa Raid* is, if not completely original, at least a variation of some game ideas not as done to death as usual.

It reminds me a little of *Frank n Stein*, a venerable game by PSS where you had to use your reasoning and timing to use a cleverly constructed series of lifts. It's also like *Booty* in that you have to collect coloured keys.

Combine those two elements and you have a game in which you have to find your way around various screens using a series of up and down lifts and collect a series of key and data cards needed to get you through a number of differently coloured doors. All this in a *Miner* like scenario of guards who wander back and forth. Certainly the game requires more thought than the usual budget effort.

The point of all this is to collect all the parts of the Mig Starfighter, a nasty Russian device which may well be their answer to Star Wars. In any event your task is to aggressively share their technology for the good of mankind and keeping the Latin American countries Christian. One of the most ingenious budget games I've seen in a long while.

Program *Hypa Raid*
Price *£1.99*
Micro *Spectrum*
Supplier *Atlantis Software, 19 Prebend Street, London N1 8PF*

INGENIOUS

Time Sanctuary is an unusual program from MC Lothlorien – computer wargames from way back. This, though, is an adventure in a style all of its own, although there are touches of *Lords of Midnight* about some of the ideas.

The plot is quite clear, involving injustice and an AWOL time machine. Your main objective is to find out where it went and get it back. This involves wandering around a strange land (which reminds me faintly of Pepperland with its various garish colour clashes.) The game features a kind of simplified *LOM* landscaping, where objects first seen in the distance grow in size as you move towards them.

The interaction is kept to single key presses for the most part, but an ingenious series of scrolling commands means that quite complex and specific instructions can be issued. There are various other characters in the game with whom you must deal, whose interaction with you is a key feature of the game. Their impression of you matters if you seek their help.

I think *Time Sanctuary* has plenty of imagination but lacks programming skill and slickness, the graphics have that user defined look and the character set has not been redesigned. The game looks like it is in Basic (although it probably isn't) though those are, to be fair, just the kind of comments that 'true adventurers' tell me are irrelevant to a true assessment of an adventure. I'll shut up and say it looks ropey, but shows signs of much original thought.

Program *Time Sanctuary*
Price *£7.95*
Micro *Spectrum*
Supplies *MC Lothlorien, 56A Park Lane, Poynton, SK12 1RE*

This Week

Alladins Cave	Arc	Spectrum	£6.95	Artic
Back to Skool	Arc	Spectrum	£6.95	Microsphere
Deathwake	Arc	Spectrum	£7.95	Quicksilva
The Living Body	Ed	Spectrum	£14.95	Martech
Think!	S	Spectrum	£7.95	Ariolasoft
Cammac One	Ut	Spectrum	£5.95	Micro Zeighty
Cammac Three	Ut	Spectrum	£18.95	Micro Zeighty
Cammac Two	Ut	Spectrum	£11.99	Micro Zeighty
Romaze	Arc	ZX81	£3.95	C Wehner

Ariolasoft, Retail **Artic**, Main Street, Brandesburton, Driffield YO25 8RL, 0401 43553 **Blue Ribbon**, Silver House Silver Street Doncaster, South Yorkshire DN1 1HL 0302 21137 **C Wehner**, 9 Upper Park NW3 2UN **Calline**, 8 Grafton Street London W1X 3LA **Domark**, 204 Warple Road London Sw20 8PN 01-947 5624 **Ellis**, 55 Bradford Street Walsall WS1 3QD 0922 611215 **Kuma**, Kuma Computers 12 Horseshoe Park Pangbourne RG8 7JW, 07357 4335 **Leisure Genius**, 3 Montagu Row, London W1H 1AB 01-935 4622 **Level 9**, 229 Hughenden Road, High Wycombe Bucks HP13 5PG, 0494 26871 **Martech**, Martech House Bay Terrace Pevensey Bay East Sussex BN24 6EE 0323 768456 **Melbourne House**, 39 Milton Trading Estate, Abingdon Oxon OX14 4TD 0235 835001 **Micro Power**, Northwood House, North Street, Leeds LS7 2BB, 0532 434006 **Microsphere**, 72 Rosebury Road London N10 2LA 01-883 9411 **Psientific**, 37 Cottesmore Road Hessle North Humberside HU13 9JQ 0482 649187 **Quicksilva**, Palmerston Park House, 13 Palmerston Road Southampton, Hampshire SO1 1LL 0703 20169 **Superior**, Regent House Skinner Lane, Leeds LS7 1AX 0532 459453 **US Gold**, Unit 10 The Parkway Ind Centre Heneage Street, Birmingham B7 4LY 021 359 3020

Alternative World

It seems to be fashionable to be sniffy about computer games

A writer in one recent report I read said that young people who owned computers and used them mostly for games playing had no significant advantage when starting computer studies at school

I wonder At the simplest level, my own experience suggest that children with home-computers gain at the very least a basic knowledge of the Qwerty keyboard. While the typing rooms in schools are still too likely to be seen, however erroneously, as low-status 'female' ghettos home computers are among the few ways in which the intelligent young are likely to be made familiar with so important part of their future working environment.

Then I wonder about the computer studies that these pupils are starting Are they learning to program? Are they being given general computer awareness courses? Are they plugging away at some of the dreaded 'education' software?

Watch young people playing a good computer game together and the first thing you realise from their cryptic comments is that they share an intimate knowledge of an alternative world. Games-playing is not the solitary activity that some of its critics claim Players like to share their insights, knacks and dodges with fellow devotees

Language, in fact, is what it's all about. They are immersed in the game's symbol-system, and are reading it on various levels.

First, maybe, there's the fictional level, the pretext of the game, the stuff it talks about on the cassette inlay "You are alone on a monster-ridden planet and being attacked . . . " or "Miner Willy has had a party and must collect . . . " That sort of thing This level seems to matter the first time you play a game, but is soon forgotten its relative insignificance is often signalled by jokiness – mutant camels, flying hairspray, etc.

Next comes the manipulative level, where the player learns how the joystick or keyboard relates to the screen Every good game has its own feel, and the hand on the joystick trigger must learn to react faster than the conscious mind.

Then comes a deeper level where you attune to the programmer's wavelength – where consciously or unconsciously you find the patterns in the game, and suddenly realise how particular problems can be coped with.

This interconnects with a more technical level, where the player gets to know how sprites behave

There can also be a hacking level, where useful *Pokes*, often communicated as folklore on an informal network, help you to beat the system by playing it on its own machine-code terms. All's fair in computer-gaming.

Games are absorbing because players can operate on all these levels simultaneously, enjoying a rich and multi-layered experience

Too often educational programs present the machine as the all-knowing expert that marks you right or wrong and penalises you if you step outside its often all too rigid categories. (Stories of programs grimly rejecting intelligent input that hasn't been anticipated are, of course, legion.) The computer is cast as rigid tyrant that humans must bow before Fit in or fail

In a game, on the other hand, the program is a system that challenges you to beat it, by fair means or foul, where you probably discover the best strategy by ganging up with your friends.

I know which I think offers the best preparation for life

George Simmers

Puzzle No 186

Can seven plus eight ever equal 12? Yes! – if the sum is in the form of an alphamatic as shown below

```
  S E V E N +
    E I G H T
  -----------
  T W E L V E
```

As is usual in puzzles of this type, each letter stands for a digit, the same letter representing the same digit whenever it occurs Can you find the original sum – though you may find more than one possible answer!

Solution to Puzzle No 181

The correct sum is: $17 \times 4 = 68 + 80 = 88$

```
10 FOR A=1 TO 9
20 FOR B=1 TO 9
30 IF A=B THEN GOTO 2[illegible]
40 FOR C=1 TO 9
50 IF C=A OR C=B THEN GOTO 2[illegible]
60 LET Z=(A*10+B)*C
70 [illegible]
80 LET [illegible]
90 IF [illegible] THEN GOTO [illegible]
100 IF [illegible] THEN GOTO [illegible]
110 FOR D=1 TO 9
120 IF D=A OR D=B OR D=C OR D=V OR D=W THEN GOTO [illegible]
130 FOR E=1 TO 9
140 IF E=A OR E=B OR E=C OR E=D OR E=V OR E=W THEN GOTO [illegible]
150 LET Y=[illegible]
160 IF Y>99 THEN GOTO 2[illegible]
170 LET Y$=STR$(Y) [illegible]
180 LET T=VAL [illegible] LET U=VAL [illegible]
190 IF T=A OR T=B OR T=C OR T=D OR T=E OR T=V OR
    T=W OR T=U THEN GOTO 2[illegible]
200 IF U=A OR U=B OR U=C OR U=D OR U=E OR U=V OR U=W
    OR U=T THEN GOTO 220
210 PRINT A;B;" ";C;D;E;" ";Y
220 NEXT E
230 NEXT D
240 NEXT C
250 NEXT B
260 NEXT A
```

The program works by generating the first three digits (A B, and C) and calculating the resulting product (A*10+B)*C This gives the result of the first stage of the calculation. The digits of this product are then checked to see that they have not already been used (lines 80 to 100) A further two values are then generated in two FOR/NEXT loops, again checking for duplication of digits (lines 110 to 140) These digits represent the number which is to be *added*. When this is done (line 150) the final result is again checked for duplication.

Line 210 prints any solution which passes these tests

Winner of Puzzle No 181

The winner is E J Sargeant of Long Eaton, Nottingham, who will be receiving £10

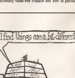
Rules

The closing date for Puzzle No 186 is January 1

The Hackers

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